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ACIDOSIS IN NEPHRITIS *

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The subject of acidosis in nephritis is one of such practical importance that it deserves emphasis from a clinical standpoint. Many significant observations bearing on this general topic have accumulated during the last ten years. In the study of this question, Van Slyke's simple method [1] of determining the alkali reserve of the body with the aid of the carbon dioxid combining power of the blood has been of great assistance. We have utilized this method to excellent advantage since Van Syke's preliminary publication [2] in 1915.

The term acidosis, although originally coined by Naunyn to apply to the ketosis of diabetes, has come to be used in a much broader sense with the development of our knowledge of this subject. Obviously, acidosis may result either from an abnormal formation of acid substances or, as in nephritis, from a decreased elimination of normally formed substances. Under conditions of health, the blood is uniformly maintained at a constant slightly alkaline reaction through the influence of the bicarbonate, phosphate and proteins of the blood.

The carbonates of the blood have been called by L. J. Henderson the first line of defense. Increased pulmonary ventilation, as occurs with dyspnea or hyperpnea, serves to increase the excretion of carbon dioxid, thus keeping the reaction of the blood within normal limits. In conditions of acidosis, other acids may combine with the bicarbonate, robbing the body of its alkali reserve. Under ordinary conditions, however, the kidneys are able to secrete an acid urine from a nearly neutral blood through the medium of acid phosphate, constituting a second means of defense. From the investigations of Marriott and Howland [3] it appears that it is just this factor which breaks down in the acidosis of nephritis. They have found the inorganic phosphates of the blood serum increased to many times the normal in nephritic acidosis, although nephritic cases without acidosis did not show this change. Other means of defense against acidosis are the blood and body proteins, which are able to take up considerable amounts of acids without marked change in reaction, and the ability to form alkali, i. e., ammonia. The latter factor is of considerable importance in the acidosis of such conditions as diabetes and pernicious vomiting, but apparently of little significance in nephritis.[4]

DETERMINATION OF DEGREE OF ACIDOSIS

A number of different criteria have been suggested as a measure of the degree of acidosis: (1) lowered carbon dioxid combining power of the blood; (2) lowered alveolar carbon dioxid tension; (3) decreased affinity of hemoglobin for oxygen; (4) reduced alkalinity of the blood; (5) increased hydrogen ion concentration of the blood; (6) increased intensity of urinary acidity (hydrogen ion concentration), and (7) the retention of alkali by the body in cases in which the kidney is capable of rapidly excreting an excess of alkali.

All of these have furnished valuable information in the development of our knowledge of this subject, but the first, second and seventh have yielded information of special clinical value. Although the carbon dioxid tension of the alveolar air may readily be ascertained at the bedside with Marriott's simple apparatus,[5] the information is not as reliable as the carbon dioxid combining power of the blood determined by the Van Slyke method. Nevertheless, the method of Marriott may be of great clinical assistance. That the bicarbonate depletion may roughly be determined by administration of sodium bicarbonate has been pointed out by Sellards,[6] and by Palmer and Henderson,[7] and this method has been in practical use for several years. Normally from 5 to 10 gm. of sodium bicarbonate are sufficient to change the reaction of the urine, but in the acidosis of advanced nephritis the deficiency may amount in exceptional instances to as much as 100 gm. of bicarbonate or more.

Palmer and Van Slyke [8] have recently studied this question rather carefully in connection with the carbon dioxid combining power of the blood. They found that in most pathologic cases the urine did not become more alkaline than blood until a higher plasma bicarbonate had been reached than in normal individuals. This would result in the giving of unnecessary and

* From the Department of Medicine and the Laboratory of Pathological Chemistry, New York Post-Graduate Medical School and Hospital.

1. Van Slyke, D. D.: J. Biol. Chem. **30**: 347 (June) 1917. Van Slyke, D. D., and Cullen, G. E.: Ibid., p. 289.
2. Van Slyke, D. D.; Stillman, Edgar, and Cullen, G. E.: Proc. Soc. Exper. Biol. & Med. **12**: 165 (April) 1915.
3. Marriott, W McK., and Howland, John: Phosphate Retention as a Factor in the Production of Acidosis in Nephritis, Arch. Int. Med. **18**: 708 (Nov.) 1916.
4. Marriott, W. McK., and Howland, John: The Influence of Acid Phosphate on the Elimination of Ammonia in the Urine, Arch. Int. Med. **22**: 477 (Oct.) 1918.
5. Marriott, W. McK.: The Determination of Alveolar Carbon Dioxid Tension by a Simple Method, J. A. M. A. **66**: 1594 (May 20) 1916.
6. Sellards, A. W.: Bull. Johns Hopkins Hosp. **25**: 141, 1914.
7. Palmer, W. W., and Henderson, L. J.: Clinical Studies on Acid Base Equilibrium and the Nature of Acidosis, Arch. Int. Med. **12**: 153 (Aug.) 1913; A Study of the Several Factors of Acid Excretion in Nephritis, ibid. **16**: 109 (July) 1915.
8. Palmer, W. W., and Van Slyke, D. D.: J. Biol. Chem. **32**: 499 (Dec.) 1917.

possibly injurious amounts of bicarbonate, if the administration was continued until the urine turned alkaline, as has been the usual clinical procedure. The bicarbonate retention may therefore indicate a much more severe acidosis than actually exists. Palmer and Van Slyke advise carefully controlling the therapeutic use of sodium bicarbonate. They have calculated that taking 42 pounds as the unit of weight, 0.5 gm. of sodium bicarbonate will raise the plasma carbon dioxid

TABLE 1.—ACIDOSIS IN FATAL CASES OF NEPHRITIS WITH MARKED NITROGEN RETENTION

Case	Age	Sex*	CO_2 Combining Power, C.c. per 100	Sodium Bicarbonate Administration, Days before Death	Remarks	Other Blood Analyses, Creatinin, Mg. per 100 C.c.	Other Blood Analyses, Urea N, per C.c.	Period of Observations before Death
1. F. M.	39	♂	12	0	No alkali	28.6	186	3 weeks
2. A. C.	53	♂	29	9	No alkali	22.5	106	2 weeks
3. P. J.	43	♂	21	0	No alkali; operation	20.0	209	4 days
4. L. R.	25	♀	36	0	6 gm. for 8 days; pneumonia	20.0	108	3 weeks
5. E. D.	53	♀	27	11	Receiving alkali	19.8	114	2 weeks
6. N. W.	19	♀	31	9	No alkali until after test	19.2	164	2 weeks
7. F. L.	20	♀	34	1	No alkali	18.9	141	2 weeks
8. R. A.	30	♀	38	3	No alkali; operation	18.7	68	1 week
9. M. M.	40	♀	23	1	No alkali until after test	18.3	246	2 days
10. E. P.	34	♀	32	7	Little alkali; CO_2 four days previously	17.6	85	2 weeks
11. A. N.	27	♀	12	3	No alkali until after test	17.0	148	2½ months
12. J. H.	29	♂	45	1	Alkali previous day	14.7	77	2 weeks
13. M. P.	25	♂	31	10	No alkali	14.4	141	2 weeks
14. A. M.	41	♂	32	60	Received alkali subsequently	13.5	147	2 months
15. E. P.	40	♀	28	24	Died outside hospital	12.7	116	3 months
16. A. L.	52	♀	32	4	No alkali	12.6	78	5 days
17. M. N.	46	♂	31	13	No alkali	12.5	210	3 months
18. W. W.	30	♂	22	60	Alkali discontinued for some time	12.5	76	5 months
19. J. B.	34	♂	32	240	Received 6 gm. daily for 10 days	12.5	110	11 months
20. F. B.	32	♂	39	6	Receiving colonic irrigation of 2% alkali	11.5	102	1 week

* In this column, ♂ indicates male, and ♀ female.

1 per cent. by volume. In view of this, it is possible to calculate the amount of alkali required to restore the plasma bicarbonate to normal.

The normal range for the carbon dioxid combining power of the blood in the adult, as shown by Van Slyke, Stillman and Cullen,[9] is from 55 to 75 c.c. of carbon dioxid per hundred c.c. of plasma.

OBSERVATIONS ON ACIDOSIS IN NEPHRITIS

In Table 1 are given observations in twenty fatal cases of nephritis with marked nitrogen retention. These cases were the first twenty in a series of 100 having high figures for the blood creatinin[10] in which observations of the plasma carbon dioxid had been obtained. It will be noted that without exception these cases show a pronounced acidosis, and in two instances, Cases 1 and 11 (compare also Table 2), this was sufficient to have been the immediate cause of death. Only in one case was the carbon dioxid found to be above 40, and here alkali had been given the day previous.

To emphasize the importance of acidosis in nephritis, three groups of two cases each are tabulated in Table 2. It is not believed that detailed case histories would aid especially in any deductions that might be drawn, and they are therefore omitted. The first two patients suffered from severe chronic interstitial nephritis, showing marked nitrogen retention and acidosis. It is worthy of note that E. M. was up and about at the time of the first analyses, while A. N., after a short stay in the hospital, was at home for a period of seven weeks feeling improved. In both of these cases there was pronounced acidosis, and at the end the carbon dioxid dropped to such a low level as to be incompatible with life. The observations of Whitney[11] make it evident that such low figures may be the direct cause of death. As these patients did not receive alkali (until after the last recorded test), the carbon dioxid obviously fell to a lower level than would otherwise have been the case.

W. W. and J. McC. represent cases of chronic nephritis admitted to the hospital with pronounced symptoms of acidosis. Although both patients died about one month after leaving the hospital, they showed considerable clinical improvement, this being coincident with the rise in the carbon dioxid combining power of the blood.

The last two patients, M. McA. and W. C., men of 44 and 49 years, respectively, were cases of acute nephritis showing pronounced acidosis (very marked dyspnea), but ending in complete recovery. Although this type of case is apparently not frequently encountered, it furnishes an interesting contrast to the preceding two groups. W. C. was admitted supposedly in

TABLE 2.—ACIDOSIS IN CHRONIC AND ACUTE NEPHRITIS

Case	Date	CO_2 Combining Power C.c. per 100	Creatinin, Mg. per 100 C.c. Blood	Urea Nitrogen, Mg. per 100 C.c. Blood	Remarks
E. M.	11/30/15	24	17.5	97	
	12/ 4/15	21	21.5	129	
	12/10/15	26	22.3	132	
	12/17/15	15	24.2	150	
	12/24/15	12	26.7	200	Death in chronic nephritis apparently due to acidosis; no alkali given
A. N.	3/12/18	31	8.6	97	
	3/26/18	28	12.1	110	
	4/16/18	23	11.2	78	
	5/ 7/18	25	15.2	76	
	5/24/18	12	17.0	148	
W. W.	2/11/16	23	8.5	55	
	2/23/16	21	12.5	76	
	3/ 7/16	22	10.4	60	Acute exacerbation of chronic nephritis; clinical improvement coincident with rise in alkali reserve; alkali given for a time
	4/ 7/16	54	9.5	39	
	5/10/16	22	9.6	56	
J. McC.	12/28/15	20	5.1	64	
	1/ 8/16	56	4.5	39	
	1/11/16	58	5.4	39	
	2/ 4/16	40	4.8	36	
M. McA.	1/25/16	22	4.6	71	
	4/11/16	45	2.7	17	
	5/ 8/17	..	2.4	17	
W. C.	1/15/16	22	3.5	44	Severe acidosis in acute nephritis with complete recovery
	1/17/16	58	4.1	62	
	1/19/16	56	3.2	53	
	1/28/16	..	1.9	19	
	6/11/18	..	1.8	16	

"uremic" coma. On estimating the creatinin and urea in the blood, however, we were surprised at the comparatively slight nitrogen retention, but an examination of the carbon dioxid combining power disclosed the apparent difficulty. Two infusions of sodium bicarbonate, 12 gm. each, on the fifteenth and sixteenth, produced quite remarkable clinical results, and in less than two weeks the blood findings were normal.

9. Van Slyke, D. D.; Stillman, Edgar, and Cullen, G. E.: J. Biol. Chem. **30**: 401 (June) 1917.
10. Myers, V. C., and Killian, J. A.: Am. J. M. Sc. **157**: 674 (May) 1919.
11. Whitney, J. L.: Studies on Acidosis; The Immediate Cause of Death, and Remarks on the Acidosis of Nephritis, Arch. Int. Med. **20**: 931 (Dec.) 1917.

Several years ago, Peabody [12] stated that the development of acidosis bears little relation to the accumulation of nonprotein nitrogen in the blood or to the phenolsulphonephthalein output, although he pointed out that in the terminal stages of uremia there may be a high grade acidosis. Our experience likewise leads us to believe that there are many cases of nephritis with considerable nitrogen retention that show little acidosis; but this certainly is not true of the more advanced cases. From the data reported in Table 1, it would appear that all fatal cases of chronic nephritis with marked nitrogen retention show a severe acidosis, sufficient in some instances to be the actual cause of death.

What part acidosis plays in the clinical symptoms of so-called uremia is difficult to answer. Patients with pronounced acidosis present a somewhat different clinical picture; but until we possess additional information regarding the cause of uremic symptoms, whether they are due to a toxic base such as methylguanidin, to a deficiency in calcium, or to something else,-it will not be possible to clear up this problem satisfactorily. Palmer and Henderson, Sellards, Peabody and Whitney, in the papers previously referred to, have given illuminating discussions of the acidosis problem in nephritis. So far as the acidosis goes, it is now possible to obtain very reliable information from the carbon dioxid combining power of the blood plasma with the relatively simple Van Slyke method; and furthermore, the administration of alkali can be particularly well controlled with this method. Acidosis is a fairly prominent feature of many cases of acute nephritis, and is present in severe form in all terminal cases with marked nitrogen retention.

CONCLUSIONS

All fatal cases of chronic nephritis with marked nitrogen retention show a severe acidosis, sufficient in many instances to be the actual cause of death.

In some cases of acute nephritis and acute exacerbation of chronic nephritis the distress is apparently due to the acidosis, since the judicious use of sodium bicarbonate results in general clinical improvement. With the rise in the carbon dioxid combining power of the blood, the dyspnea and hyperpnea disappear.

12. Peabody, F. W.: Clinical Studies on the Respiration, II, The Acidosis of Chronic Nephritis, Arch. Int. Med. **16**: 955 (Dec.) 1915.

Child Surveys.—The need for surveys to reveal exactly what a child ought to have in order to be properly reared and what his chances are for getting it under present conditions is one of the topics emphasized in the seventh annual report of the chief of the Children's Bureau of the U. S. Department of Labor. Special investigations made by the Children's Bureau in three American cities show how babies have suffered as a result of the advance in the price of milk. In Baltimore, of 728 children between 2 and 7 years of age, only 29 per cent. are now having fresh milk to drink, as against 60 per cent. a year ago; in Washington, half of those between 2 and 7 years visited by the public health nurses were receiving no fresh milk to drink; and in New Orleans conditions were even worse. Studies of the type recommended by the chief of the Children's Bureau would seek to determine all a child's needs. They would be based on actual living conditions in various types of communities; and would accordingly have a practical and not merely a theoretical value. Through them mothers would obtain an authoritative statement concerning the basic needs of growing children, and communities would be given an insight into the way in which those needs may be met.

HEMOLYTIC ACTIVITY OF SOLUTIONS OF ARSPHENAMIN AND NEO-ARSPHENAMIN *

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In the preparation of solutions of arsphenamin and neo-arsphenamin for administration by intravenous injection, sterile freshly distilled water or saline solutions (generally 0.4 per cent. sodium chlorid in distilled water) are commonly employed as solvents; the solution of arsphenamin so prepared is acid and highly toxic and requires neutralization with an alkali before administration, 15 per cent. solution of sodium hydroxid being commonly used for this purpose. On the addition of sodium hydroxid, the solution becomes very turbid, owing to the precipitation of the insoluble base of arsphenamin; with the further addition of alkali, the solution is neutralized and "clears," with the formation of the soluble monosodium salt. The addition of still more alkali to this clear solution (usually one third of the amount required for neutralization and clearing) results in the hydrogen atoms of both hydroxyls becoming replaced with sodium, and the production of a disodium salt of arsphenamin. Ehrlich originally advised the administration of the monosodium salt (solutions neutralized with sodium hydroxid just to the point of neutralization and clearing), but recently the tendency has been to add a little excess of alkali with the production or partial production of the disodium salt, which has been regarded as somewhat less toxic. Solutions of neo-arsphenamin, being neutral, do not require the addition of alkali.

While the causes and nature of the reactions following the intravenous injection of arsphenamin and neo-arsphenamin are not as yet definitely known, one of us (Kolmer) with Schamberg, Raiziss and Weiss [1] has recently shown that solutions of arsphenamin in water possess hemolytic properties, and that this factor may exert some influence in the pathogenesis of the untoward symptoms following intravenous injections of arsphenamin. Solutions of neo-arsphenamin were reported as being practically devoid of hemolytic properties.

HEMOLYTIC ACTIVITY OF ARSPHENAMIN

The hemolytic activity of solutions of arsphenamin in water may be ascribed to three factors, namely, (1) the direct hemolytic activity of arsphenamin; (2) the hemolytic activity of nonisotonic solvents (water or hypotonic saline solutions), and (3) the hemolytic activity of sodium hydroxid, especially when used in excess for the production of the disodium salt.

When arsphenamin is dissolved in water and the solution is neutralized with sodium hydroxid, some sodium chlorid is produced but never enough to render the solution isotonic; 0.1 gm. of arsphenamin dissolved in water and neutralized with sufficient sodium hydroxid to produce the monosodium or disodium salt yields about 0.0247 gm. of sodium chlorid. *For the*

* From the Dermatological Research Laboratories.

1. Schamberg, J. F.; Kolmer, J. A.; Raiziss, G. B., and Weiss, Charles: Laboratory and Clinical Studies Bearing on Causes of the Reactions Following Intravenous Injections of Arsphenamin and Neo-Arsphenamin, Arch. Dermat. & Syph. **1**: 235 (March) 1920.

preparation of isotonic solutions, varying strengths of sodium chlorid in distilled water must be used according to the total volume of fluid desired; a salt solution of one uniform strength does not suffice for all concentrations, as thus indicated:

0.1 gm. in 50 c.c. isotonic solution requires the use of 0.82 per cent. sodium chlorid solution (0.6 gm. in 300 c.c.).
0.1 gm. in 40 c.c. isotonic solution requires the use of 0.81 per cent. sodium chlorid solution (0.6 gm. in 240 c.c.).
0.1 gm. in 30 c.c. isotonic solution requires the use of 0.79 per cent. sodium chlorid solution (0.6 gm. in 180 c.c.).
0.1 gm. in 20 c.c. isotonic solution requires the use of 0.77 per cent. sodium chlorid solution (0.6 gm. in 120 c.c.).
0.1 gm. in 10 c.c. isotonic solution requires the use of 0.68 per cent. sodium chlorid solution (0.6 gm. in 60 c.c.).
0.1 gm. in 5 c.c. isotonic solution requires the use of 0.47 per cent. sodium chlorid solution (0.6 gm. in 30 c.c.).
0.1 gm. in 4 c.c. isotonic solution requires the use of 0.33 per cent. sodium chlorid solution (0.6 gm. in 24 c.c.).

Since salt solutions varying from 0.8 to 0.9 per cent. may be regarded as isotonic for practical purposes, the standard physiologic sodium chlorid solution (0.85 per cent.) may be used when each 0.1 gm. of arsphenamin is dissolved in 30 c.c. or more of saline solution (equivalent to 0.6 gm. dissolved in 180 c.c. or more); possibly the same solution could be used when each 0.1 gm. is dissolved in 20 c.c. (equivalent to 120 c.c. for 0.6 gm.), which is generally recommended; but when more concentrated solutions are employed, the strength of the saline solution varies accordingly and becomes increasingly important, since concentrated solutions of arsphenamin are more hemolytic than dilute solutions.

The results of experiments shown in Table 1 were observed by preparing solutions of the acid (non-neutralized) and of the monosodium (alkali added just to neutralization and clearing) and disodium (one third excess alkali) salts of arsphenamin in water and isotonic saline solutions in seven concentrations varying from 0.1 gm. in 50 c.c. (equivalent to 0.6 gm. in 300 c.c.) to 0.1 gm. in 4 c.c. (equivalent to 0.6 gm. in 24 c.c.); each of the resulting forty-two solutions was

TABLE 1.—THE HEMOLYTIC ACTIVITY OF ARSPHENAMIN IN VARYING SOLUTIONS FOR HUMAN ERYTHROCYTES*

Arsphenamin	Acid Solutions		Monosodium Solutions		Disodium Solutions	
	Water†	Isotonic Saline	Water	Isotonic Saline	Water	Isotonic Saline
0.1 gm. in 50 c.c. (0.6 in 300 c.c.)	0.1	<0.1	0.2	<0.1	0.4	<0.1
0.1 gm. in 40 c.c. (0.6 in 240 c.c.)	0.1	<0.1	0.2	<0.1	0.4	<0.1
0.1 gm. in 30 c.c. (0.6 in 180 c.c.)	0.1	<0.1	0.4	<0.1	0.6	0.2
0.1 gm. in 20 c.c. (0.6 in 120 c.c.)	0.2	<0.1	0.4	<0.1	0.8	0.2
0.1 gm. in 10 c.c. (0.6 in 60 c.c.)	0.2	<0.1	0.6	<0.1	1.0	0.4
0.1 gm. in 5 c.c. (0.6 in 30 c.c.)	0.2	<0.1	0.6	<0.1	1.0	0.4
0.1 gm. in 4 c.c. (0.6 in 24 c.c.)	0.2	0.1	0.8	0.2	1.0	0.6

* This table gives the largest amounts of a 50 per cent. suspension of washed erythrocytes completely hemolized by 1 c.c. of each solution of arsphenamin after the mixtures had been incubated at 38 C. for one hour and stood in a refrigerator over night.
† Water alone in 1 c.c. caused the complete hemolysis of 0.2 c.c. of cells.

tested for hemolytic activity by placing 1 c.c. in eight test tubes and adding increasing amounts of a 50 per cent. suspension of washed human erythrocytes, thus: 0.1, 0.2, 0.4, 0.6, 0.8, 1.0, 2.0 and 3.0 c.c. These mixtures and controls were placed in a water bath at 38 C. for one hour and then in a refrigerator over night, the occurrence and degree of hemolysis being recorded the following day.

In Table 2 are shown the results of duplicate experiments conducted at the same time with sheep erythrocytes. Additional experiments were conducted in exactly the same manner, employing defibrinated rabbit blood and rabbit blood collected with sodium fluorid to prevent coagulation, in order to test the hemolytic properties of the solutions under conditions more closely approaching those in vivo and in the presence of plasma or serum.

The results of the four sets of experiments were closely parallel and may be thus summarized:

1. Acid or non-neutralized solutions and solutions of the monosodium and disodium salts of arsphenamin

TABLE 2.—THE HEMOLYTIC ACTIVITY OF ARSPHENAMIN IN VARYING SOLUTIONS FOR SHEEP ERYTHROCYTES*

Arsphenamin	Acid Solutions		Monosodium Solutions		Disodium Solutions	
	Water†	Isotonic Saline	Water	Isotonic Saline	Water	Isotonic Saline
0.1 gm. in 50 c.c. (0.6 in 300 c.c.)	0.1	<0.1	0.4	<0.1	0.8	<0.1
0.1 gm. in 40 c.c. (0.6 in 240 c.c.)	0.1	<0.1	0.4	<0.1	1.0	<0.1
0.1 gm. in 30 c.c. (0.6 in 180 c.c.)	0.1	<0.1	0.8	<0.1	1.0	0.1
0.1 gm. in 20 c.c. (0.6 in 120 c.c.)	0.1	<0.1	0.8	<0.1	1.0	0.2
0.1 gm. in 10 c.c. (0.6 in 60 c.c.)	0.2	<0.1	1.0	<0.1	1.0	0.2
0.1 gm. in 5 c.c. (0.6 in 30 c.c.)	0.4	0.1	3.0	<0.1	2.0	0.8
0.1 gm. in 4 c.c. (0.6 in 24 c.c.)	0.8	0.2	3.0	0.2	3.0	1.0

* This table gives the largest amounts of a 50 per cent. suspension of washed erythrocytes completely hemolized by 1 c.c. of each solution of arsphenamin after the mixtures had been incubated at 38 C. for one hour and stood in a refrigerator over night.
† Water alone (1 c.c.) caused the complete hemolysis of 0.6 c.c. of cells.

in isotonic saline solution were decidedly less hemolytic than corresponding solutions in plain distilled water. Even in isotonic saline all solutions of arsphenamin showed some hemolysis, owing to the direct hemolytic activity of the drug itself, as previously mentioned. As shown in Tables 1 and 2, while 1 c.c. of a solution of arsphenamin in water in the proportion of 0.6 gm. in 120 c.c. caused the complete hemolysis of from 0.6 to 1.0 c.c. of 50 per cent. suspensions of human and sheep erythrocytes, similar solutions in isotonic saline solution hemolyzed only from 0.1 to 0.2 c.c. of the same cells, these and similar results with defibrinated and fluorided rabbit blood indicating that *solutions of arsphenamin in isotonic saline solutions are generally from three to ten times less hemolytic than similar solutions in plain distilled water.*

2. *Concentrated solutions of arsphenamin in water and isotonic saline are more hemolytic than dilute solutions;* this is to be expected, owing to the direct hemolytic activity of arsphenamin, which effects are naturally most marked in concentrated solutions. For example, while 1 c.c. of a solution of the disodium salt in isotonic saline in proportion of 0.6 gm. of arsphenamin in 300 c.c. failed to produce complete hemolysis of 0.1 c.c. of 50 per cent. suspensions of human and sheep erythrocytes, concentrated solutions, as 0.6 gm. in 24 c.c. of isotonic saline, produced complete hemolysis of from 0.6 to 1.0 c.c. of cells, indicating that the latter solution was from six to ten times more hemolytic than the dilute solution. This gradual increase in hemolytic activity of concentrated solutions is shown in Tables 1 and 2, and similar results were observed with defibrinated and fluorided rabbit blood.

3. Solutions of the monosodium salt of arsphenamin in water and saline are more hemolytic than acid solutions, and solutions of the disodium salt are more hemolytic than those of the monosodium salt. We have ascribed these differences to the well known and marked hemolytic activity of sodium hydroxid and alkalis in general. Of most practical significance are

the relative hemolytic activities of solutions of the monosodium and disodium salts; for example, 1 c.c. of a solution of the monosodium salt of arsphenamin in isotonic saline solution in the proportion of 0.6 gm. in 120 c.c. produced complete hemolysis of less than 0.1 c.c. of human and sheep corpuscles, whereas similar solutions of the disodium salt caused complete hemolysis of 0.2 c.c. of the same cells. These and similar examples with rabbit blood indicate that solutions of the disodium salt of arsphenamin are from two to eight times more hemolytic than corresponding solutions of the monosodium salt. We may repeat in this connection that solutions of the monosodium salt are designated as those to which just sufficient sodium hydroxid had been added to neutralize and "clear" the solution; solutions of the disodium salt contained this amount of alkali plus one third excess. Whether the monosodium and disodium salts of arsphenamin are more hemolytic than the base has not been determined; we have ascribed the results to the alkali, the solutions of the disodium salt being more hemolytic in proportion to the larger amounts of alkali added to the solutions.

HEMOLYTIC ACTIVITY OF NEO-ARSPHENAMIN

Neo-arsphenamin, in contrast to arsphenamin, is not hemolytic; but *dilute solutions of neo-arsphenamin in sterile distilled water are hemolytic, whereas concentrated solutions are not; both dilute and concentrated solutions in physiologic sodium chlorid solution (0.85 per cent. sodium chlorid in distilled water) are without demonstrable hemolytic properties.*

TABLE 3.—THE HEMOLYTIC ACTIVITY OF NEO-ARSPHENAMIN IN WATER AND PHYSIOLOGIC SODIUM CHLORID SOLUTION FOR HUMAN ERYTHROCYTES

Neo-Arsphenamin	Hemolytic Activity: Solutions in Water*	Hemolytic Activity: Solutions in Saline
0.1 gm. in 50 c.c. (0.9 in 450 c.c.)	0.6 †	No hemolysis
0.1 gm. in 40 c.c. (0.9 in 360 c.c.)	0.6	No hemolysis
0.1 gm. in 30 c.c. (0.9 in 270 c.c.)	0.4	No hemolysis
0.1 gm. in 20 c.c. (0.9 in 180 c.c.)	0.4	No hemolysis
0.1 gm. in 15 c.c. (0.9 in 135 c.c.)	0.4	No hemolysis
0.1 gm. in 10 c.c. (0.9 in 90 c.c.)	0.2	No hemolysis
0.1 gm. in 5 c.c. (0.9 in 45 c.c.)	<0.2	No hemolysis
0.1 gm. in 4 c.c. (0.9 in 36 c.c.)	<0.2	No hemolysis
0.1 gm. in 3 c.c. (0.9 in 27 c.c.)	No hemolysis	No hemolysis
0.1 gm. in 2 c.c. (0.9 in 18 c.c.)	No hemolysis	No hemolysis
0.1 gm. in 1 c.c. (0.9 in 9 c.c.)	No hemolysis	No hemolysis

* Water alone (1 c.c.) caused the complete hemolysis of 0.4 c.c. of a 10 per cent. suspension of corpuscles.

† The largest amount of a 10 per cent. suspension of washed human erythrocytes in physiologic sodium chlorid solution completely hemolyzed after incubation at 38° C. for one hour and stood over night in a refrigerator.

The results of experiments conducted as described above, except that washed human corpuscles in 10 per cent. suspension were employed, are shown in Table 3. Duplicate tests were conducted with defibrinated and fluorided rabbit blood.

When neo-arsphenamin is dissolved in water, some inorganic matter is produced, including sodium chlorid. The exact amount of sodium chlorid produced by a given amount of the drug remains to be determined; but it would appear, according to our results, that when 0.9 gm. of neo-arsphenamin is dissolved in 27 c.c. of water, enough salt is furnished to render the solution isotonic. This indicates that in 3 per cent. solutions of neo-arsphenamin there is produced somewhere in the neighborhood of 0.7 per cent. inorganic salts responsible for isotonicity or, in other words, the solution of 0.9 gm. of neo-arsphenamin in about 30 c.c. of water produces about 0.2 gm. of these salts sufficient for rendering the water isotonic. As shown in Table 3, dilute solutions of neo-arsphenamin (0.9 gm. in 90 c.c. or more of water) are decidedly hemolytic because the inorganic salts are too highly diluted with water; solutions of 0.9 gm. in from 36 to 50 c.c. are slightly hemolytic, while solutions of 0.9 gm. in 30 c.c. or less of water are nonhemolytic. These results would have been more striking if 50 per cent. suspensions of corpuscles had been used, because a 10 per cent. suspension in saline solution, as employed in these experiments, carried over more isotonic sodium chlorid solution than a 50 per cent. suspension of cells.

As shown in Table 3, all solutions of neo-arsphenamin in physiologic sodium chlorid solution were nonhemolytic; unquestionably, all solutions, and particularly the concentrated solutions, were hypertonic by reason of the addition of the sodium chlorid liberated by the solution of the drug, but none of the solutions produced hemolysis.

PRACTICAL SIGNIFICANCE

The practical significance of these results depends almost entirely on the importance of intravascular hemolysis following the intravenous administration of arsphenamin and neo-arsphenamin; if hemolysis is held responsible for some of the untoward effects following the administration of these drugs, the results are of considerable practical importance and clearly indicate the adoption of certain steps in the technic of administration calculated to reduce the degree of hemolysis. Animal tests consisting of the intravenous injection of rats with 2 per cent. solutions of the disodium salt of arsphenamin in water and in isotonic saline have not shown constant differences in toxicity; similar tests employing 4 per cent. solutions of neo-arsphenamin in water and physiologic sodium chlorid solution have yielded closely similar results so far as life or death of the experimental animals were concerned. Possibly these tests are not sufficiently delicate for eliciting the effects ascribable to hemolysis alone; abundant clinical experience has shown that solutions of arsphenamin in water are well borne, and some physicians believe that the solution of the disodium salt of arsphenamin is better borne than that of the less hemolytic solution of the monosodium salt. However, comparative studies may show differences and a decrease of reactions in favor of the use of the less hemolytic solutions; we are not aware of such studies having been made on a sufficiently large scale to be conclusive, but suggest the advisability of conducting the investigation by reason of the very important practical value of the subject.

TECHNIC FOR REDUCING HEMOLYTIC ACTIVITY

While hemolysis in vivo may be insufficient to produce appreciable harm, it would appear quite certain not to do good, and it is advisable to reduce as much as possible the hemolytic activity of solutions of arsphenamin and neo-arsphenamin; these objects may be obtained by observing the following points in technic:

1. By administering neo-arsphenamin dissolved in sterile physiologic sodium chlorid solution instead of plain distilled water.

2. By preparing solutions of arsphenamin in a saline solution of sufficient strength to render the solution isotonic. The strength of the saline depends on the

concentration of the drug; for example, solutions of 0.6 gm. of arsphenamin in 120 c.c. or more, and of 0.4 gm. in 80 c.c. or more, may be made with physiologic sodium chlorid solution, whereas more concentrated solutions require from 0.3 to 0.7 per cent. saline as described above to secure isotonic solutions, according to the concentration of the solution of arsphenamin the physician is accustomed to prepare. The strength of the saline is the same for solutions of both the monosodium and disodium salts. Probably sterile physiologic sodium chlorid solution may be used for preparing the concentrated solutions of arsphenamin; but the resulting solutions would be hypertonic. These hypertonic solutions, however, are not likely to prove hemolytic, as experiments have shown that solutions of sodium chlorid in distilled water may be as high as 7 per cent. before producing hemolysis of fresh citrated human blood.

3. By avoiding the intravenous administration of concentrated solutions of arsphenamin for the reasons already given, concentrations of 0.6 gm. of arsphenamin in 60 c.c. or less of water or isotonic saline markedly increase hemolytic activity; more dilute solutions, as 0.6 gm. in from 120 to 180 c.c. of water or saline, are much less hemolytic.

4. By giving the injections slowly rather than rapidly, and particularly if concentrated solutions are being administered with a syringe; with slow injections there is more opportunity afforded for dilution of the hemolytic solution of arsphenamin with blood plasma and consequent reduction in hemolytic activity.

5. By avoiding the use of an excess of sodium hydroxid; whether solutions of the disodium salt are less toxic than solutions of the monosodium salt is yet to be determined in a conclusive manner. From the standpoint of hemolysis alone, the solution of monosodium salt (just enough alkali added to neutralize and "clear" the solution) is preferable to solutions to which one third excess of alkali has been added; probably the practice of adding enough alkali just to neutralize the solution plus one fifth more will prove the best practical procedure.

CONCLUSIONS

1. All solutions of arsphenamin are hemolytic, owing primarily to the direct hemolytic activity of arsphenamin itself.

2. Solutions of arsphenamin in isotonic saline solution are from three to ten times less hemolytic than solutions in water.

3. The hemolytic activity of solutions of arsphenamin in water and isotonic saline is unavoidably increased by the addition of sodium hydroxid for purposes of neutralization; the addition of an excess of alkali increases hemolytic activity.

4. Concentrated solutions of arsphenamin in water and isotonic saline are more hemolytic than dilute solutions.

5. Neo-arsphenamin is not hemolytic.

6. Dilute solutions of neo-arsphenamin in water, as 0.9 gm. in 90 c.c. or more of water, are hemolytic, owing to hypotonicity of the solution. Concentrated solutions, as 0.9 gm. in 30 c.c. or less of water, are not hemolytic, owing to the presence of sufficient inorganic salts from the drug to render the solution approximately isotonic.

7. To avoid hemolysis in the administration of dilute solutions of neo-arsphenamin, sterile physiologic sodium chlorid solution prepared of freshly distilled water should be used; when the concentrated solutions are administered (each 0.1 gm. dissolved in 3 c.c. or less), sterile distilled water may be employed.

8. The degree of hemolysis produced by the administration of arsphenamin may be lessened (*a*) by using instead of water sterile saline solutions of such strength as to render the solutions isotonic; (*b*) by avoiding the administration of concentrated solutions; (*c*) by carefully neutralizing and "clearing" the solution with sodium hydroxid, counting the drops or otherwise measuring the amount necessary, and adding not more than a fifth of this amount in excess, and (*d*) by giving the injections slowly so as to permit gradual mixing and dilution of the solution with the blood.

DIFFERENCES IN PATHOLOGY OF PANDEMIC AND RECURRENT FORMS OF SO-CALLED INFLUENZA

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In New York City the first recurrent epidemic of so-called influenza, now fortunately at an end, presented certain noteworthy differences from the pandemic disease which prevailed in the latter part of 1918. The recurrent disease, while it incapacitated thousands, pursued a milder course, complicating pneumonias were relately few, and the death rate, of course, did not approach the appalling figures of the previous eruption. On the other hand, the recurrent disease was characterized by a greater variety of pulmonary lesions—among other things, by concomitant semipurulent pleural exudates, by multiple pleural and subpleural abscesses, by frequent and extensive purulent invasion of the interlobar and interlobular septums of the lungs, by the formation of solitary, oftener multiple, discrete or confluent abscesses of the parenchyma, and by an extraordinary range of pneumonic lesions. The pathologic anatomy of the recurrent disease is important, not only from the standpoint of the diagnosis and treatment of the acute process, but also because the nature and distribution of the anatomic changes are such that we may expect both immediate and remote sequelae, some of which will probably demand operative interference.

The pandemic of 1918 is fresh in memory; but for purposes of comparison it may be recalled that the disease was strikingly abrupt in onset and that pneumonic complications were seldom absent, that they occurred early, progressed with amazing rapidity, and yielded a high mortality. At necropsy, the changes in the lungs were so constant that the anatomic diagnosis of so-called influenzal pneumonia could be postulated with almost absolute certainty, even in the absence of any knowledge of the clinical history. Variations occurred, of course, but were numerically inconsiderable. For example, in the first epidemic, the pleura was almost invariably free from signs of exudate. The inflammatory changes in the lungs, commencing in the deeper portions of both lower lobes apparently simultaneously, and progressing rapidly

toward the periphery, often spared many intervening or surface lobules. The pleura almost always escaped literally, it would appear, because death took place before the pleura had time to react. In certain localities, empyema frequently occurred as a sequel to pneumonia; but the rapidly fatal pneumonias were seldom actually accompanied by inflammatory changes in the pleura. In the recurrent epidemic, on the contrary, many hundreds came down with a disease of comparatively trifling proportions; pneumonic complications, when present at all, were late and progressed without unusual rapidity. In the recurrent disease, the anatomic picture was extremely variable, so much so that, in order to classify the pleural and pulmonary changes, one must resort to the process of grouping; and between groups and the individual members of different groups there are numerous gradations.

DEATH FROM ASPHYXIA WITHOUT PNEUMONIA

Near the close of the epidemic of 1918, one of us [1] described a variety of so-called influenzal infection which was characterized anatomically by generalized intense congestion of the viscera, without evidences of pneumonic lesions, or attended by lesions of such small size as to be negligible. Death was accompanied by signs of asphyxia and, at necropsy, the right side of the heart was found to be immensely distended by deep bluish black fluid and clotted blood. The lungs were large, heavy and deep bluish, and the pleura was thin, smooth and glistening. On section, the cut surface was of the smoothness of velvet, and pressure yielded large amounts of dark fluid blood with or without an admixture of dirty, pinkish, edematous fluid. The mucosa of the larger bronchi was covered by a thin sheeting of whitish exudate, beneath which the membrane was swollen and intensely injected. Virtually every other organ in the body was injected to a correponding extent. In the recurrent epidemic we have encountered five cases of identical nature. In all of them poisoning by wood alchohol was suspected because of the intense and widespread injection of the tissues, particularly the lungs and brain. Chemical investigation of the viscera in every case, however, was negative. Of the cases observed in 1918 and 1920—seven in all—the clinical histories were obtainable in six and showed that the patients had been ill for periods varying from a week to twenty-one days with cyanosis and generalized aches and pains, prostration, elevation of temperature, injection of the pharynx, and numerous moist and squeaky râles scattered over both sides of the chest. In two cases, signs of meningeal irritation were present in the form of muscular twitchings. In one case of the seven, death was sudden.

EMPYEMA AND PULMONARY ABSCESSES

In the recurrent epidemic, forty-five cases were investigated by necropsy at Bellevue Hospital. Of this number, the pleura was involved in twenty-seven (60 per cent.). Of the twenty-seven cases, effusions occurred into the pleural cavity in eighteen, or forty per cent. of the total number of cases observed at necropsy; in twelve cases (26.6 per cent.), the effusions were semipurulent and unilateral in distribution, and in two cases bilateral; the remaining four were frankly purulent—two bilateral and two unilateral. Of the twenty-seven cases of pleural involvement, mutiple small subpleural abscesses occurred twelve times (44.4 per cent.) and of these, six were associated with semipurulent effusions and one with frank empyema. All of the seven cases of small subpleural abscesses associated with pleural effusions were found to be accompanied by abscesses in the parenchyma of the lung, the latter being relatively much larger in size. In the remaining five cases of subpleural abscesses, purulent foci in the parenchyma of the lung were absent, and there were no signs of pleural effusion, although the pleura was the seat of edematous fibrinous exudate in every instance. The association of multiple subpleural abscesses with pleural effusions and with abscesses in the parenchyma of the lung is of obvious surgical significance. On the other hand, it appears that multiple small subpleural abscesses may exist alone without giving rise to secondary effusions into the pleura. In the presence of such abscesses, however, it would be rather far fetched to assume that an accompanying effusion represents an independent infection of the pleura. While we have no anatomic evidence to offer that subpleural abscesses of the type described in this paper bear a direct causative relationship to empyema, it is quite probable that if an individual with small subpleural abscesses survives sufficiently long, rupture of or seepage through might readily infect the pleura with the secondary formation of seropurulent or purulent effusions. In short, in the recurrent disease there were cases of pleural effusion, purulent or semipurulent, which were associated with a combination of subpleural and parenchymal abscesses; there were other cases in which subpleural abscesses occurred alone and were not associated with effusions into the pleural cavity; in still other cases, pleural effusions occurred independently of abscess formation either in the pleura or in the lungs.

Of the forty-five cases, sixteen were associated with the presence of intrapulmonic abscesses (35.5 per cent.). In only one of these cases was the abscess solitary. The others were multiple, of irregular distribution, some bilateral, others unilateral, some in the lower lobes, others in the upper. The abscesses varied in size from minute affairs to purulent foci approximating 2 or 3 cm. in diameter. In one case, the upper lobe of the lung was almost completely replaced by multiple discrete or intercommunicating cavities.

THE PLEURAL CHANGES

The inflammatory changes in the pleura presented marked variations:

(*a*) In those cases of pneumonia in which the changes in the lung were obviously of the more acute variety, localized sheets of edematous fibrinous exudate were scattered over the surface of the consolidated lung, and when stripped away left an opaque, finely granular, deep bluish surface, scattered through which innumerable minute hemorrhagic specks were often discernible. In such cases, the exudate was practically never attended by the excessive accumulation of fluid in the corresponding pleural cavity.

(*b*) A second group of cases was characterized by the extensive deposit of fibrinous material over the surface of the lung, the membrane being thick, tough, opaque, dirty yellowish white, firmly attached, and often thrown into innumerable small corrugations. These membranous deposits were obviously in proc-

1. Symmers, Douglas: The Significance of the Vascular Changes in the So-Called Pandemic Influenza, New York M. J. **110**: 789 (Nov. 15) 1919.

ess of organization, and were invariably associated with excessive accumulation of semipurulent fluid exudate in the pleural cavity.

(*c*) In a third group of cases, the pleura was the seat of diffuse or patchlike collections of succulent, yellowish exudate which penetrated the lung substance at irregular intervals. Section of the consolidated lung in such cases showed thick, edematous prolongations extending from the pleura and surrounding individual lobules or small groups of lobules, not alone at the periphery of the lung, but deep in its substance. In many instances the interlobar septums were extensively invaded, the lobes were firmly glued together, and not infrequently collections of fluid exudate were included between them.

(*d*) In a fourth group of cases, the pleura presented solitary or multiple, pea-sized or slightly larger, rounded projections which were yellowish, soft in consistency, and, on section, released moderately thick, yellowish, cloudy fluid. These small abscesses lay in or immediately beneath the pleura and were often associated with quantities of seropurulent fluid in the dependent portions of the cavity. The intervening pleura was usually the seat of irregular or diffuse collections of edematous fibrinous exudate The external covering of the abscesses was intact as far as the unaided eye could determine. Microscopic examination of the pleura in these cases showed the presence of rounded or elongated, circumscribed masses of polymorphonuclear leukocytes enclosed in a meshwork of finely fibrillated fibrin, the whole lying in or just beneath the pleura, sometimes surrounded by a thin but distinct layer of connective tissue representing, apparently, the result of proliferation of the walls of the lymph vessels. In certain of these minute abscesses the limiting connective tissue contained small, injected blood vessels.

It is obvious that the changes in the pleura are of extreme importance, not only from the standpoint of immediate effects, but because they are such that, if the patient survives, sequelae may be expected in a certain proportion of cases in the form of organization of the pleural membranes, with complete or partial obliteration of the cavity and interference with the movements of the corresponding lung, chronic diffuse or sacculated pleural or interlobar empyemas, and chronic interstitial interlobar pleuritis or interlobular pneumonia following organization of the exudate in the pleural extensions. In the same way, one seems justified in the prediction that residuums of pulmonary abscesses may occasion trouble in a certain number of cases in the form of gangrene of the lung following invasion by putrefactive bacteria, organization of the abscess walls with the overgrowth of connective tissue, and the formation of bronchiectases, expectoration of pus from bronchial fistulas, and the like.

PULMONARY LESIONS

In the pandemic of 1918, pneumonia was an almost constant occurrence. The prevailing type was a confluent lobular hemorrhagic and exudative lesion of bilateral distribution associated with areas of acute vesicular emphysema. In the recurrent disease, as we saw it at Bellevue Hospital, the attendant pneumonia conformed to no anatomic type. Of the pulmonary changes, the nearest approach to uniformity was found in the five cases marked by diffuse and intense congestion of the lungs and of virtually every other organ in the body, with dilatation of the heart and death from asphyxia without signs of pneumonia, or with pneumonic foci which were numerically and geographically insignificant. Of the forty-five cases, only three were sufficiently charateristic to be classified with the variety of pneumonia that prevailed in the pandemic sweep. The remaining thirty-seven cases represented a conglomeration of pneumonic lesions, scarcely any two of which bore the same essential features. Among these, however, we were enabled to recognize a group, the members of which seemed to bear a certain general resemblance to the confluent lobular pneumonia of 1918. In these cases both lungs were involved, the lower lobes to a greater extent than the upper. The pleura covering the consolidated areas was irregularly strewn with fibrinous exudate and more or less richly sprinkled with hemorrhagic petechiae, and areas of acute vesicular emphysema were occasionally to be observed. The splotchlike hemorrhagic extravasations in the pleura, so frequently encountered a year ago, were seldom discernible. On the other hand, the consolidated portions not uncommonly showed large nodular or streaklike, firm, dark slate-blue elevations which, on section, revealed a smooth, velvety, bluish black surface, rich in blood—the so-called marantic infarctions or, better, massive hemorrhagic extravasations. The cut surface of the lungs as a whole presented extreme variations both in appearance and in consistency, owing to different combinations of dull reddish or deep bluish or grayish red lobular consolidations, confluent lobules of dull white appearance and semifluid consistency, inflammatory edema, abscess cavities varying in size from the head of a large pin to that of a crabapple, and filled with moderately thick whitish pus, the picture being still further complicated on occasions by the intersection of cream colored bands of infiltrated pleura that surrounded lobules or groups of lobules or that bound one lobe to another. In addition, the mucosa of the larger bronchi was swollen, deep bluish red, and of velvety smoothness. In three cases, large portions of a lobe were consolidated in such fashion as to resemble ordinary croupous pneumonia.

We do not mean to convey the impression that any single group of pneumonias in the recurrent epidemic presented the above described features with anything approaching regularity. On the contrary, as we have already stated, no two sets of pneumonic lungs presented the same essential features in the same essential combination as did the prevailing pneumonia of the pandemic year. Nevertheless, it is possible to select individual features from the array of pneumonias that accompanied the recurrent epidemic, and from them to reconstruct a composite picture of the pneumonia which characterized the pandemic.

Microscopically, the changes in the lung were correspondingly variable. The capillary vessels were universally engorged, intra-alveolar hemorrhages were frequent—sometimes discrete, at other times confluent. Certain vesicles were partially or completely filled by coagulated serous fluid, entangled in which were a few red cells or an occasional round cell. Other vesicles were filled by polymorphonuclear leukocytes and fibrin, and through necrosis and confluence of these, the majority of abscesses appeared to arise. The frequent and abundant appearance of fibrin was in contrast to the lungs of the pandemic disease, in which fibrin threads were rarely demonstrable and then in isolated

localities and small numbers. The interlobar pleural extensions were frequently enormously thickened through the infiltration of polymorphonuclear leukocytes and the deposition of variable quantities of fibrin. Most of these prolongations were ribbon-like in shape but not infrequently became oval or rounded and centrally necrotic; in this way, other abscesses were formed. In still other instances, the intervesicular venules and arterioles were thrombosed, and the exudate in the immediate vicinity showed large areas of necrosis. The smaller bronchi were distended by polymorphonuclear leukocytes, and their epithelial cells were desquamated.

HEART

In the pandemic of 1918, the heart muscle in the majority of cases was deeply congested but otherwise well preserved, both as far as the naked eye and microscopic changes were concerned. In the recurrent epidemic, acute parenchymatous degeneration occurred with great frequency, the heart muscle being flabby, opaque and friable. The immediate cause of death in both epidemics was to be found in immense dilatation of the heart, particularly the right side, the cavities of which were often filled to the point of distention by deep bluish red fluid and partially clotted blood. In one of the Bellevue Hospital cases during the recurrent epidemic, the pericardium was the seat of a semipurulent effusion out of which a pure growth of pneumococcus was secured. With this exception, the pericardium showed no changes worthy of record.

KIDNEYS

In the recurrent epidemic, acute parenchymatous degeneration of the kidneys occurred more frequently and in a more severe form than in the previous disease, the kidneys often being swollen, edematous and flabby, easily torn, and their markings obscured or irregular in distribution. Microscopic examination revealed, in addition to widespread congestion, granular changes in the epithelial cells of the convoluted tubules, occasionally in those of the glomerular tufts.

JAUNDICE

Of the forty-five cases investigated postmortem at Bellevue Hospital, jaundice occurred in only four, and was slight in extent, being limited to the face and upper portions of the chest. At necropsy, a number of factors appeared to participate in its production, namely, congestion and edema of the papilla of Vater and the surrounding mucous membrane of the duodenum, and the presence of mucoid secretions in the larger bile ducts, together with congestion and parenchymatous degeneration of the liver proper.

MISCELLANEOUS COMPLICATIONS

In the recurrent epidemic, degenerative changes in the rectus muscles were observed in Bellevue Hospital only once, and were of mild degree (Zenker's degeneration). In the previous epidemic, this variety of muscle change was encountered in a considerable proportion of cases, and not infrequently was attended by rupture and extravasation of large quantities of blood into the sheath of the muscle, occasionally followed by secondary infection and abscess formation. In another case in the recurrent epidemic, an abscess was found at the hilum of the right testicle associated with a solitary abscess of the upper lobe of the right lung occurring in a hemorrhagic variety of lobular pneumonia. The same patient presented multiple effusions into the joints.

BACTERIOLOGY

Bacteriologic examination of the pleural fluid removed surgically and sent to the laboratory, together with that encountered at necropsy, revealed streptococci in most instances, occasionally *Staphylococcus aureus* and pneumococci. Bacteriologic examination of the pus in the intrapulmonary abscesses almost invariably yielded a pure growth of *Streptococcus hemolyticus*, but occasionally *Staphylococcus aureus*. In three cases, *Streptococcus hemolyticus* was isolated in pure culture from the blood. In the pneumonic exudates themselves, the prevailing micro-organism was a streptococcus. In occasional instances, influenza bacilli and pneumococci were isolated in combination with one another or with streptococci. There were three cases in which massive portions of a lobe were consolidated in such fashion as to resemble ordinary croupous pneumonia. In all of these the exudate was sticky. In two, *Bacillus mucosus-capsulatus* was isolated, in the other *Streptococcus mucosus*. In three other cases, streptococci were isolated from the blood during life; and all of them, at necropsy, presented abscesses of the lungs.

SUMMARY AND CONCLUSIONS

1. The first recurrent epidemic of so-called influenza in New York presented anatomic variations from the pandemic disease of a year before, (*a*) in the form of frequent and widespread inflammatory involvement of the pleura characterized by semipurulent and purulent exudates occurring in immediate association with pneumonic changes; (*b*) by multiple small pleural or subpleural abscesses; (*c*) by purulent infiltration of the interlobular and interlobar pleura, and (*d*) by solitary, oftener multiple, discrete or confluent intrapulmonary abscesses varying in size from a few millimeters to several centimeters.

2. In the pandemic disease of 1918, the participation of the pleura in the pneumonic process was conspicuous by its rarity. In the recurrent epidemic, pleural involvement occurred in 60 per cent. of all cases; and in 40 per cent., purulent or semipurulent effusions were present.

3. In the epidemic of 1918, intrapulmonary abscesses were virtually unknown accompaniments of the pneumonic process. In the recurrent epidemic, they were encountered in 35.5 per cent. of all cases. Of the total number of cases attended by pleural involvement (twenty-seven in all), multiple small pleural or subpleural abscesses occurred in twelve, or in 44.4 per cent.

4. As a result of the recurrent disease, sequelae may be expected in the form of (*a*) organization of the inflamed pleural membranes with partial or complete obliteration of the cavity and interference with the excursions of the corresponding lung; (*b*) delayed, diffuse or sacculated pleural or interlobar empyemas; (*c*) fibrosis of the lung following organization of exudate in the interlobar and interlobular septums of the pleura, and (*d*) gangrene of the lung and bronchiectatic cavities following secondary changes in intrapulmonary abscesses.

5. In the epidemic of 1918, pneumonia was virtually constant, both in point of incidence and in conformation to type. In the recurrent disease, pneumonia was a relatively infrequent event, and the anatomic vaga-

ries in the distribution and structure of the lesions were so numerous that no two sets of lungs were similar in appearance, and often one lung differed markedly from its fellow.

6. In the pandemic disease of 1918, acute degenerative changes in the heart muscle, liver and kidneys were neither frequent nor intense. In the recurrent disease, they were both common and severe. In the pandemic, the blood cultures were almost invariably sterile; in the epidemic, streptococcal septicemia occurred, we estimate, in about 10 per cent. of all pneumonias.

YELLOW FEVER CONTROL IN ECUADOR

PRELIMINARY REPORT

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The files of the National Board of Health of Ecuador show that the first recorded epidemic of yellow fever in the country occurred in the city of Guayaquil in the year 1842, and it was estimated at that time that one half of the population of the city died from this disease during the epidemic.

Yellow fever was probably introduced into Ecuador from Panama by the earlier settlers soon after the appearance of the disease at Panama, and has probably been present in Ecuador since that time, notwithstanding the fact that the records of the sanitary department report as many as three consecutive months in one year having passed without a single recognizable case of the disease. It undoubtedly was present, but in a type so benign as not to be easily diagnosed, especially in children.

The Gorgas commission of the International Health Board in a world survey for endemic yellow fever centers reported that this disease could be "eradicated from the west coast of South America by eradicating it at Guayaquil, Ecuador," and recommended that the attack be made by destroying the stegomyia breeding places in that city.

Arrangements were entered into with the Republic of Ecuador for a cooperative campaign with its national health agency on the following basis:

1. The National Board of Health of Ecuador would supervise the isolation of yellow fever patients and fumigation of houses as might be attempted.
2. The International Health Board would concentrate its efforts on mosquito-proofing the necessary water receptacles, that is to say, antilarvae measures.

The built-up area of Guayaquil occupies about 3 square miles, has a population of 90,000, and contains nearly 6,000 buildings. The average annual rainfall is 60 inches, and occurs principally during the months of January, February, March and April — a relatively short and light rainy season for a tropical city. The elevation of the city above mean tide is about 2 meters, and the topography is that of a plane.

The water supply is taken from a river about 90 kilometers northeast of the city. The present supply provides for 40 liters per capita each day and is delivered from storage tanks through a system of mains for about four fifths of the city area. The ration of water is available in the morning for one and one-half hours only. That part of the city in which it is not possible to make house connections is served by water venders and from public taps or fountains.

The scarcity of water, therefore, makes it obligatory on the residents to store sufficient water for their needs in tanks, barrels and like receptacles.

ANTILARVAE MEASURES

That yellow fever is a place disease is a generally accepted fact. The spot map of yellow fever cases occurring in the city of Guayaquil during the year 1918 brings this out quite clearly, and shows that the vast majority of cases reported up to November of that year occurred in the most densely populated section of the city, or rather in that section in which houses had been erected without any intervening space. A survey of this district revealed the important fact that the vast majority of homes were supplied with from one to twelve water tanks each, in addition to the barrels and smaller receptacles, while the outlying districts depended almost entirely on smaller receptacles, very few tanks being used. Many of the tanks inspected were uncovered or so badly covered that the mosquito experienced no difficulty whatever in gaining access to the water within. The barrels and other receptacles were all uncovered. All tanks inspected on this survey were found to contain the stegomyia larvae; the smaller receptacles were also breeding places, more especially for the culex; and in two instances I noted stegomyia larvae in tanks, while in barrels in the same room only culex larvae could be found.

The stegomyia is essentially a house mosquito, that is to say, it breeds, lives and dies in the same house, it does not fly for any considerable distance, and it avoids bright sunlight; only under rare circumstances is it to be found breeding in streets, yards or fields, at least in Ecuador, and up to now we have not found this extraneous breeding of sufficient importance to be considered a factor in the present campaign.

The antilarvae measures were started Nov. 25, 1918, and were based on the findings of the early survey. The first step was to mosquito-proof all tanks as soon as possible, and the organization concentrated its efforts on this work during the earlier weeks of the campaign.

A graph to be published later will show that yellow fever cases decreased rapidly as the tanks were made mosquito-proof; and when the number of breeding places in tanks were reduced to 5 per cent. of the total number inspected, the disease had been controlled, but was not considered eradicated. This reduction was taking place during the height of the rainy season and while receptacles of water, other than tanks, still remained stegomyia breeding places.

Nearly all tanks used in the city for conserving water are made in the country, are rectangular, and have a capacity of from 10 to several hundred gallons. The water enters the tanks from above, the inlet pipe resting on the top of one side of the tank; the outlet pipe is usually from 1 to 2 inches above the level of the tank floor, and even when the tanks are empty, so far as getting any water from them by means of the faucet is concerned, there always remains enough water in the tank for an ideal breeding place for the mosquito. This fact explains in part why tanks are a more desirable breeding place for the mosquito: this class of water container is seldom without water, and the surface of the water is disturbed only during the morning for one hour or so.

In the barrels and the smaller containers, conditions are not so favorable for the mosquito, as the water is always taken from these containers by means of a pail or large cup and always from above; consequently, during daylight hours there is considerable movement of the water surface which is not conducive to the selection of this class of receptacle as a breeding place by a mosquito of the habits of the stegomyia; and further, there comes a time rather frequently in the dry season when the barrel and similar receptacles are empty by reason of the scarcity of water or for purposes of cleaning the container, a condition that does not obtain with tanks, at least with the same frequency. It is fair to assume that if the stegomyia mosquito can exercise the instinct for self preservation, it will select and even hunt for water in a tank in which to deposit her eggs as offering a more favorable opportunity for the development of same as contrasted with chances in a barrel or similar receptacle.

The present campaign has been based on the thought that with a reduction of stegomyia mosquito breeding in water tanks there should be a reduction in the number of cases of yellow fever, and that if the effort is continued the disease will be eradicated. All containers of fresh water in or near human habitation have been treated; but the thought to be conveyed is that the tanks as water containers have been given first consideration.

There are nearly 7,000 water tanks in use in the city, and nearly 30,000 other containers to be inspected. The tanks have been covered with either copper screen, galvanized iron, or wooden covers. Of the three classes of covers, the galvanized iron has proved the most satisfactory and the cheapest; they do not admit of contamination of the water by rats, which is possible with copper screening; nor can they be taken and used for fire wood, as sometimes happens with wooden covers.

Great care is taken that the tanks are so covered that the mosquitoes cannot gain entrance to the water within. We impress on the people that the mosquito is a small insect and naturally can penetrate a small opening. Tanks with perfectly fitting covers are sealed, bearing the stamp of the service, in a manner that the cover of the tank cannot be raised without breaking the seal, and a broken seal indicates to the inspector that a careful inspection of the tank must be made to determine whether the cover has been off long enough for the mosquito to deposit her eggs within.

Public opinion for the work was created through the press, public lectures, posters, handbooks, etc. Yellow fever had so long handicapped and actually retarded the progress of Guayaquil and Ecuador that the public was ready to cooperate in any measure that would aid in the control of this disease, and this effort has been most intelligent and constant. Owing to the scarcity of water, especially in the dry season, it was highly desirable that we should adopt some measure that would free the water containers of mosquito larvae and at the same time conserve the water to the people, and accomplish this result economically. We experimented with different species of fish to determine their usefulness as mosquito larvae consumers.

The first variety of fish used is known locally as the "huaijas," a member of the perch family. This fish readily eats mosquito larvae, but soon tires of its existence in a barrel or small receptacle, and will jump 3 and sometimes 4 feet to free itself from the container. The jumping properties are most often exhibited during the night. It will be readily seen that even when people are willing and anxious to conserve the fish in their water containers, they can hardly be expected to watch them during the night. To counteract this jumping, the service supplied covers for the barrels; but here again we encountered difficulty in keeping the covers on the barrels, and there are good local reasons why it was not desirable to insist that all barrels be equipped with covers and the water drawn off by faucet. We were forced to abandon the huaijas, on account of its jumping, for the chata, a small fish which proved to be a voracious eater of mosquito larvae. It has the additional property of spending the greater part of its time at the surface of the water; but when any one approached the container, the chata would immediately swim to the bottom, remaining there until the cause of its fright had been removed.

The chalaco also was tried out and has given very good results. Top minnows or "millions," were given a trial, and are quite satisfactory for certain class of containers. These fish are very delicate and do not survive long in the ordinary container unless some care is given to them. As long as fish are available, they will be used for all containers other than tanks.

The present campaign was actually started, Nov. 25, 1918, with twelve sanitary districts. The number of districts was gradually increased up to twenty-nine. This number was maintained for a few months, when reduction was permissible. Oct. 1, 1919, the city was redivided into ten sanitary districts. The inspection cycle was arranged so that every home in the city should be visited at least once every seven days, including Sundays. Sanitary inspectors started in their districts on Monday, and those not able to conclude on Saturday were aided by auxiliary squads.

On the farms outside the city of Guayaquil, all large containers were eliminated; and as these farms are usually located on the river and the homes of the laborers on the banks of the river, it was decided to recommend that receptacles holding not more than 5 gallons of water be used in place of barrels. It had previously been observed that the vast majority of the laborers do not use in their homes more than 5 gallons of water in twenty-four hours. Bathing, washing of clothes, etc., is usually done in the river, so that there is really no need for conserving water longer than twenty-four hours in the homes. By this method it is believed that the stegomyia mosquito can be eliminated in those areas where this measure can be put in force.

Death and Blindness Caused by Wood Alcohol.—Owing to the heavy increase recently noted in the number of deaths and cases of blindness resulting from the drinking of wood alcohol by those ignorant of its dangers, the National Committee for the Prevention of Blindness, 130 East Twenty-Second Street, New York, is sending broadcast special warnings of the tragic consequences which may follow the use of wood alcohol, denatured alcohol and medicated alcohol for beverage purposes. The harmful action of this poison comes not only from taking it internally, but may likewise be induced by breathing its fumes, and by absorption through the mucous membranes of the body. Its effect is usually noticeable very shortly after exposure. Within a few hours after drinking, acute headache is noted, usually accompanied by violent attacks of vomiting, body pains, extending over the region of the kidneys, and excessive dizziness. Vision may become impaired, total blindness occur, and death itself result.—*Illinois Health News*, October, 1919.

ARTERIAL HYPERTENSION *

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The great importance of arterial hypertension or the conditions associated with it, as a widespread and apparently increasing cause of disability and death, is a self-evident incentive to investigation. At the same time it must be recognized that our knowledge of the subject is in a very confused state, as respects its phases of etiology, mechanism and treatment. Just as with diabetes, the literature contains almost every conceivable variety of opinions and suggestions. The first task of an investigator to choose is what seems significant and valuable among this mass of conflicting material, and the second is to build concrete facts with accurate methods in a clinical field which is still largely a morass of tradition and imagination.

THEORIES REGARDING THE CAUSES OF HYPERTENSION

More or less restriction of salt has been employed for many years by some observant clinicians in the treatment of the various forms of nephritis. The first scientific foundation of both theoretical and practical importance is afforded by the work of the French school, beginning with Widal's demonstration of the rôle of the chlorids, particularly in the causation and treatment of edema, and with the application of this principle to hypertension by Ambard,[1] Combe,[2] Laufer [3] and others. Similar results were obtained in arteriosclerosis by Bayer; [4] but with only a few exceptions the tests with nephritis in Krehl's clinic were negative or doubtful, and the general German experience was opposed to a strict relationship between retention of chlorids and elevation of blood pressure.[5]

In American literature, salt and fluid restriction in hypertension is mentioned casually and incompletely if at all, and the protein intoxication theory is undoubtedly the dominant one. Treatment consists chiefly in low protein diets, the elimination of supposed toxins, or the artificial reduction of pressure by drugs, bleeding, electricity, and the like. Mental and bodily rest is advised to a degree which largely terminates usefulness in life, and many conservative practitioners refrain from any serious attempt to reduce the pressure, and devote themselves to keeping the patient as comfortable as possible, with resignation as to the results.

There are various reasons for this confusion and pessimism. In the German work the cases were not always well chosen and the restriction of salt was generally inadequate, though this work does furnish evidence against any invariable association of hypertension and gross chlorid retention. On the other hand, whether or not protein has any influence on blood pressure, it is impossible to accept Ambard's assertion that it is harmless in nephritis. Ambard considers fluid restriction unnecessary, and in adopting milk diet he comes back to the identical therapeutic program used by the followers of the intoxication hypothesis. The fluid restriction of Laufer, who accepts von Noorden's limit of a liter daily without reckoning the important additional quantities contained in the food, is too lax for the worst cases. Likewise a much stricter exclusion of salt than represented by milk diet is essential for results in really severe cases. These inaccuracies are responsible for an unnecessarily high percentage of cases of absolutely or relatively irreducible hypertension in French, German, American and all other records, and also for the unnecessarily frequent and early deaths from apoplexy, cardiac failure, pulmonary edema and convulsions (misnamed uremic). For the same reason there have been no differences in therapeutic results sufficiently marked to establish any one theory to the satisfaction of all parties.

RESTRICTION OF WATER AND SALT

It would be wrong to ignore the unknown and uncontrollable factors in hypertension and the unsolved problems which they present. But any practitioner who will conform his treatment to one reasonable and definite condition, namely, the necessity of the organism to force a filtrate of water and dissolved substances through a damaged and partially blocked glomerular filter, can readily demonstrate for himself the compensatory element in the hypertension, by observing the fall in pressure and the relief of some attendant symptoms when proper diet reduces the quantity of this filtrate to a minimum. The opposite treatment under the intoxication hypothesis, through unsuitable diets and attempts at "flushing out," entails much harm. In some hypertension cases the mere reduction of the overload of salt and water brings relief which is comparable to the benefits of diet in diabetes.

Fuller laboratory study, particularly by blood analyses, contributes new information of theoretical, prognostic and therapeutic importance. Among the nephritic cases treated in our clinic to date, there have been twenty examples of marked hypertension. Most of these were treated in private hospital status, but four were outpatients. The observations are necessarily empiric, and are subject to modification from wider clinical experience, and particularly to more fundamental and decisive interpretations when animal experiments become available. Numerous data of these cases, function tests according to Ambard's principles, and details of individual histories and results, must be reserved for a more complete publication at a later date.

It may suffice here to state that the patients' ages ranged from 25 to 69 years, with the usual predominance of those past 40. All the cases were of chronic type. Their severity was mostly too great to yield to mere rest and hospital care, and some were known as highly severe cases which had proved intractable to a variety of customary treatments for several years. Bleeding was used temporarily in three critical cases, and brief experiments have been tried with some other measures; but in general the patients were not kept in bed or confined to the house but were treated entirely by diet.

To establish the general principle, the effects of sudden dosage with salt or water in suitable cases are illustrated by two experiments.

In the first experiment (Table 1), attention may be called to the absence of real retention of either salt or water (contrary to the French reports), and to the

* Read before the American Society for Experimental Pathology, Cincinnati, Dec. 30, 1919.

* Preliminary communication, based on a clinical study in collaboration with Drs. J. W. Mitchell and J. W. Sherrill.

1. Ambard, L.: Thèse de Paris, 1905; Semaine méd. **26**: 361, 1906.
2. Combe, A.: Monatsschr. f. Kinderh. **4**: 13, 82, 1905.
3. Laufer, R. J.: Compt. rend. Soc. de biol. **56**: 249, 1904.
4. Bayer, R.: Arch. f. exper. Path. u. Pharmakol. **57**: 162, 1907.
5. Loeb, A.: Deutsch. Arch. f. klin. Med. **85**: 348, 1905-1906. Brodski, J.: Berl. klin. Wchnschr. **43**: 906, 1906; Deutsch. Arch. f. klin. Med. **93**: 310, 1908. Löwenstein, C.: Arch. f. exper. Path. u. Pharmakol. **57**: 137, 1907.

remarkably high plasma chlorid figures [6] and the elevation of blood pressure accompanying these.

The second experiment (Table 2) was performed on a different patient. The plasma chlorid percentage was not high, and fell lower with the water drinking, while the blood pressure rose markedly.

The first patient received salt, but showed no effect from a corresponding test with water alone. Because of the close relations between salt and water, it is

TABLE 1.—SALT TOLERANCE TEST, SEPT. 25, 1919

Time	Water Given, C.c.	Urine Vol., C.c.	Urine Sp. Gr.	Urine NaCl %	Urine NaCl* Gm.	Plasma Chlorids Mg. per 100 C.c.	Blood Urea Mg. per 100 C.c.	Blood Pressure Systolic	Blood Pressure Diastolic
8 a.m.	200	...	.....	.....	.....	...	....	202	104
9 a.m.	200	65	1.011	0.72	0.47	...	....	...	...
10 a.m.	200	410	1.006	0.30	1.21	...	....	...	...
11 a.m.*	200	305	1.007	0.34	1.03	672	19.6	200	100
12 m.	200	120	1.008	0.44	0.53	672	19.6	198	94
1 p.m.	200	160	1.015	1.15	1.84	684	19.6	194	98
2 p.m.	200	105	1.016	1.21	1.27	676	....	224	100
3 p.m.	200	120	1.016	1.30	1.55	704	....	242	110
4 p.m.	200	210	1.007	0.90	1.88	...	....	206	110
5 p.m.	200	500	1.007	0.44	2.20	...	....	230	100
6 p.m.	200	250	.....	0.60	1.49	648	....	210	100
6 p.m. to 8 a.m.	550	830	1.009	0.41	3.40	644	19.6	182	80
Total	2,750	3,275			16.87				

* Ten grams of sodium chlorid were given at 11 a. m.

difficult to distinguish accurately between their effects, and space requirements necessitate leaving other tests to a later publication. The rise in pressure in both cases was accompanied as usual by the subjective symptoms of headache, dizziness, weakness and general malaise. Precautions were taken so that no patients suffered harm from such tests, but in severe cases there is danger that the reckless administration of either salt or water may cause alarming symptoms and even death. The accuracy of the tests is often interfered with by a protective diarrhea which also prevents dangerous disturbances.

The results of a short test may be negative in some patients or at some stages, and bad effects may become

TABLE 2.—WATER TEST, NOV. 19, 1919

Time	Water Given, C.c.	Plasma Chlorids, Mg. per 100 C.c.	Blood Urea, Mg. per 100 C.c.	Blood Pressure Systolic	Blood Pressure Diastolic
8:30 a.m.	....	571	30.2	215	130
8:40 to 9:30 a.m.	1,000	...	....	....	....
9:25 a.m.	.....	...	....	226	128
9:30 to 9:50 a.m.	600	...	....	....	....
9:55 a.m.	.....	...	....	245	130
10:00 to 11:10 a.m.	1,400	...	....	....	....
11:15 a.m.	.....	...	....	228	140
11:30 a.m. to 12:30 p.m.	800	...	....	....	....
12:30 p.m.	.....	543	23.7	254	130
2:25 p.m.	.....	...	....	226	125
4:00 p.m.	.....	...	....	188	100
5:00 p.m.	.....	...	....	190	100
9:30 a.m.	.....	...	....	200	120

evident only after some days. The effects of salt are in general more powerful and obvious, as demonstrated by the success of Ambard and others in numerous cases. A very close restriction of water may be impracticable at the beginning of treatment, because of the salt stored in the patient's body and the inadvisability of imposing any real suffering from thirst. Also in many cases no rigid fluid restriction is necessary, and moderate quantities (from 1 to 3 liters daily) may be actually beneficial for flushing out salt or nitrogen. But the prolonged combination of excessive fluid and little salt possibly involves osmotic and eliminative difficulties which are responsible for the anasarca, pulmonary edema and cardiac failure sometimes described in connection with long continued salt-poor diet.

No rigid classification, either anatomic or functional, of the cases listed in Table 3 was attempted, partly because the experience is insufficient, and partly because every case of nephritis is in some respects an individual problem, in which tests of the efficiency of different functions should be made and individual treatment prescribed accordingly. Different tests will give different classifications, and there are presumably types of cases not shown in this series. The phenolsulphonephthalein excretion is given here as one indication of renal action, but the complete publication will include other function tests. The data shown are otherwise limited to those which seemed most essential for treatment and prognosis. The order of cases is not merely consecutive or accidental, but forms a series based on these data.

TABLE 3.—EFFECTS OF DIETETIC TREATMENT IN TWENTY CASES OF HYPERTENSION

Case No.	Phenolsulphonephthalein Excretion in 2 Hrs., %	Before Treatment: Plasma Chlorids, Mg. per 100 C.c.	Before Treatment: Blood Urea, Mg. per 100 C.c.	Before Treatment: Blood Pressure Systolic	Before Treatment: Blood Pressure Diastolic	After Treatment: Plasma Chlorids, Mg. per 100 C.c.	After Treatment: Blood Urea, Mg. per 100 C.c.	After Treatment: Blood Pressure Systolic	After Treatment: Blood Pressure Diastolic
1	....	624	29.2	208	...	560	28.0	166	98
2	54.5	640	27.1	(300)					
				215	170	588	20.0	134	70
3	54.0	670	21.8	240	110	541	24.5	140	80
4	42.8	616	19.8	210	120	596	21.2	160	95
5	36.0	620	20.5	240	110	580	10.4	166	75
6	....	676	23.5	220	140	556	23.5	178	98
7	46.0	608	23.2	195	92	591	26.9	162	80
8	48.0	613	30.7	220	98	570	28.5	110	80
9	....	611	32.6	220	70	576	16.2	130	66
10	41.3	612	47.0	220	110	555	31.4	154	80
11	4.0	556	69.4	212	104	556	52.6	156	80
		(625)							
12	30.2	664	94.4	210	130	598	26.4	172	100
13	...	650	104.5	198	100	545	62.5	90	60
14	5.0	648	134.0	214	170	537	42.2	140	100
15	....	597	27.1	180	92	597	....	108	70
16	38.2	596	30.4	190	90	595	14.6	165	100
17	....	534	16.7	210	100	553	56.2	180	95
18	27.4	576	55.0	235	145	543	23.7	170	98
19	12.1	548	58.2	(205)					
				215	170	595	18.0	180	130
20	64.8	565	21.0	234	160	559	19.4	180	120

* Parentheses in the systolic pressure column indicate that the pressure in these cases was repeatedly near 300 m.m., but the actual pressure on beginning dietetic treatment was 215. In Case 19 this reduction had been accomplished only by heavy bleeding in another hospital.

CASES OF PURE HYPERTENSION

The first cases are more or less typical examples of so-called pure hypertension. One of them (Case 2) had been observed for over a year, and occasional urinalyses, even when the blood pressure was as high as 300 m.m., never showed albumin. In recent months, with more frequent urinalyses, traces of albumin have sometimes been found. The others of this group have traces of albuminuria. Omitting individual peculiarities, it may be said that this group is characterized by activity of excretion and apparent absence of retention in tests with nitrogen, water and even salt. The kidney retains power to concentrate, and both the blood urea and the urea function according to the Ambard principle may be fully normal. But the chlorid threshold, whether determined mathematically or by salt privation, is high, and these patients purchase their apparent efficiency of salt excretion at the price of abnormally high blood salt and blood pressure. Extraordinary strictness of salt-free diet may be necessary to control these, and the therapeutic success corresponds to the restriction in salt intake. This single feature some-

6. For chlorid method, see Donleavy, J. J.: J. Biol. Chem. 37: 551 (April) 1919.

times makes the difference between health and invalidism. While protein and water create no symptoms, on general principles they should be limited to some extent. Without assuming that all possible kinds of cases are represented in this list, and without overlooking other abnormalities revealed by sufficiently thorough study, it can be stated that pure hypertension, so far as it has occurred in this series, has been essentially a salt nephritis.

HYPERTENSION WITH KIDNEY IMPAIRMENT

As all standards of kidney function are to some extent arbitrary, this group passes by gradual transition into the second and larger group, in which there is obvious impairment of several kidney functions, as indicated by retention of urea and other products, impaired excretion of urea and chlorids by Ambard's laws, more or less fixation in the chlorids and specific gravity of the urine, and especially chlorid retention with or without evident edema.

The degree of impairment in the nitrogen economy calls for corresponding restriction of protein, and influences the prognosis. But the hypertension is affected only through the salt and water functions. Careful fluid restriction is necessary as a rule, but attention should be given to the nitrogen retention thus entailed in certain toxic cases. This is an additional reason for limiting the protein intake, though it is well known that the percentage of blood urea is not an infallible index of danger. Even though chlorid retention be far greater than in the first group and the other signs more evident as stated, the actual chlorid threshold may be lower and the actual salt restriction required to control the pressure may be less stringent in the second group.

It is well known that retained salt may be diffused through edema fluid without raising the percentage in the blood. Patient 11 thus had much edema, and as this diminished, the chlorid percentage in the blood rose as shown in parentheses. With this proviso, the great majority of these cases had high chlorids in the blood plasma, and it is probable that the same will hold for the majority of all hypertension cases. But in appoaching Group 3, we find a small group of hypertension patients with continuously low blood chlorids and low chlorid threshold, and often with normal or actually low blood urea.

HYPERTENSION WITH DIABETES OR SEVERE NEPHRITIS

The six closing cases of this table may be divided into two groups of three each. The first group includes three cases (15, 16 and 17) of diabetes. In them the prognosis is good with thorough treatment of the diabetes, sometimes with the aid of salt and water restriction and sometimes without it. Though there are presumably rare cases of intractable hypertensive nephritis associated with diabetes, there is generally the strong probability that proper treatment, associated with reduction of the blood sugar, will reduce the hypertension.

The last three cases of the table are nondiabetic, and have proved the most difficult and intractable of the entire series. Limitation of salt, protein and fluid, reducing the twenty-four hour urine volume below 300 c.c., has given symptomatic relief and more or less complete checking of retinitis, but the influence on the pressure has on the whole been slight and the reduction shown in the table has not been permanent. Notwithstanding the innocent looking blood analyses, according to function tests these are cases of severe nephritis, and the worst element in their prognosis from the standpoint of hypertension seems to be the absence of a high blood chlorid before treatment.

LIMITATIONS IN TREATMENT

Certain precautions or limitations should be mentioned with regard to the practical application of these principles in treatment.

First, a diet which is reasonably satisfying and at the same time sufficiently poor in salt is not so easy to arrange as it may appear. Both physician and patient may sometimes believe conscientiously that strict abstinence from salt has been maintained, when analyses will show the blood chlorids undiminished and an output of from 5 to 10 gm. in the twenty-four hour urine. Such analyses are important for controlling the treatment, and no pressure is rightly called irreducible unless the daily chlorid excretion has been reduced to practically zero.

Second, some quantity of salt is considered indispensable in the permanent ration. This is stated as about 2 gm. for normal persons, but the limits for nephritics have never been determined. On the one hand, it is not certain that the intake need be as great when the output is obstructed. On the other hand, there may be danger in withdrawing salt from certain nephritics, especially with nitrogen retention, who seem to need much more than 2 gm. of salt for its diuretic action to ward off uremia. As a rule, the outstanding effect of undue salt privation has been weakness. It is necessary, therefore, to work out salt rations for individual nephritics which may range from almost zero to a considerable quantity.

Third, restriction of salt or fluid, like every dietetic treatment of organic disease, is only palliative. Success is not as uniform as in the treatment of diabetes, and complete or partial failures are more numerous. When the first results are more or less satisfactory, there is still reason to fear that the same patients may pass into a hopeless condition in the course of months or years. Futhermore, the most effectual relief of the hypertension demonstrates strongly that the essential trouble is more than mechanical. Reduction of the blood pressure nearly or completely to normal may still leave the patient an invalid, either from weakness due to the strict salt privation which is necessary to hold down the pressure, or still worse, if salt is given so as to allow the pressure to go up. They may also be subject to attacks of hypertension and accompanying symptoms from little or no evident cause. The greatest defect of the French work is the disposition of those authors to treat the entire question as a mere mechanical matter of salt retention. Obviously, even the mechanics of hypertension remains largely unsolved, and the fundamental condition thus far baffles both research and treatment.

Notwithstanding these limitations, the benefit of suitable chlorid restriction for hypertension is still great, in making the patients more comfortable, diminishing the danger of apoplexy, and possibly checking the progressiveness of the disorder. So many of these patients give a history of copious use of salt that this may be a possible contributory factor. Granting a primary infectious or toxic etiology of the renal or vascular damage, the prolonged irritation by the excess of salt and the wear and tear of the hypertension itself

may well be regarded as a cause of progressive aggravation. By far the best and easiest results are obtainable in the earliest cases, when the hypertension is intermittent rather than continous. Early diagnosis is therefore important, and in advance of the sphygmomanometer it may be hoped that chemical tests, such as for the blood chlorids and chlorid threshold (the normal values for which are still undecided), may give advance warnings to guide prophylaxis.

Such studies may also throw some light on the origin and the control of arteriosclerosis and some other disorders. One of the most interesting branches of the investigation has concerned ophthalmic disorders, and with the cooperation of several oculists, evidence has been gathered indicating that many cases of retinitis are due chiefly or solely to chlorids and are benefited by chlorid restriction. More cases of retinitis and of glaucoma are needed for this study. The promising study of salt metabolism will probably soon be extended more widely by those who are in position to undertake parallel determinations of various salts and to develop the more fundamental problems through animal experiments. The present investigation, which has had to be self-supporting to date, has been limited and superficial for lack of these things. The clinical facts collected, however, warrant urging that unfounded theories be discarded, the widespread abuse of drugs, particularly nitrites and iodids, stopped, and the possibilities of modern laboratory methods utilized for the guidance of treatment.

5 East Fifty-First Street.

INFECTION BY THE BROAD TAPEWORM, DIPHYLLOBOTHRIUM LATUM *

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While cases of infection by the broad tapeworm have been rather frequently reported in the United States in recent years, and most of them, like the present one, have occurred in immigrants who have acquired the infection abroad, yet because of the probability of the permanent establishment of this parasite in this country, it is desirable to record each case with as many details as possible.

The worm here recorded was casually handed to me in the early part of January of this year. The dark spots in each mature segment had been noticed, but the true nature of the parasite had not been fully appreciated. The specimen had been washed from the feces with which it was expelled by the patient. The head is lacking, although many of the immature segments immediately following the head are present. The specimen is in several pieces, and the combined length of them laid out without traction on a table is 6.230 mm. All the segments appear in excellent condition, and none appear atrophic or degenerated.

The patient presented almost no symptoms.

REPORT OF CASE

B. N., man, aged 39, Russian Jew, machinist, born at Bielostok, Poland, where he resided until he was about 19 years of age, spent the next six years, including the time of the war between Russia and Japan, and while with the Russian army, at various places in Siberia, such as Omsk, Tomsk, Irkutsk and Yakutsk. During these six years he ate much uncooked fish. Although much fish had been eaten during his youth at Bielostok, he thinks it was well cooked by his mother. After the six years spent in Siberia he returned to Bielostok, and soon after came to the United States. In this country he spent one year in New York, six years in Chicago, and six in South Bend, Ind. He first knew he had a tapeworm eight years before, while he was living in Chicago, his knowledge being based on the fact that he passed fragments from 12 to 18 inches in length. These fragments appeared to him well preserved, and he says that they showed motility. He found segments only at the time of defecation. He never noticed any segments passed while he was in the Old World, but he suggested that, being younger, perhaps he was a careless observer and did not pay so much attention to himself. The patient said that he had always been well and had never consulted a physician until he wished the worm expelled in the latter part of December, 1919, and except when being examined for life insurance. He passed the insurance examination successfully. About three months before seeking treatment for tapeworm he had obscure abdominal distress; and he had another attack at the time he sought treatment. He consulted Dr. C. C. Terry of this city, by whom he was given aspidium. A few days later, when he had recovered from the effects of medication, the worm was submitted to me for identification. I was unable to get the patient for a blood examination until nearly two weeks after the worm had been expelled. Blood examination then revealed: erythrocytes, 5,148,000; leukocytes, 6,400; hemoglobin, 85 per cent., Sahli; polymorphonuclears, 56 per cent.; small lymphocytes, 28 per cent.; large lymphocytes, 7 per cent.; large mononuclears, 2 per cent.; transitionals, 3 per cent.; eosinophils, 3 per cent.; basophils, 1 per cent. The patient has the appearance of being in perfect health, and looks strong and robust.

COMMENT

There can be little doubt that this patient became infected with a broad tapeworm while living at Bielostok, which is one of the general regions where such worms are common, or in Siberia, where he knows he ate uncooked fish. He may have acquired it in this country, but that is very doubtful.

That the patient is and has always been robust shows that an anemia is not necessarily caused by the presence of this parasite. The fact that he passed well preserved and easily recognized segments is rather unusual[1]. The absence of anemia, and the good condition of the segments passed as well as of the entire worm as subsequently passed, are in accord with the views that diseased or disintegrating worms are the chief cause of the anemia due to the absorption of products from disintegrating segments.[2]

This case has afforded an excellent opportunity for the parasite to become permanently established in this region of the United States. For the past six years many thousands of eggs must have entered the sewerage system of South Bend, very soon to reach the St. Joseph River and a short time later Lake Michigan. In both river and lake, hatching larvae must have been able to parasitize various fishes.

* From the laboratory of the Clinic.

1. Brumpt, E.: Précis de parasitologie, Ed. 2, 1913, p. 249.
2. Brumpt: Précis de parasitologie, p. 263.

Probabilities as to When the First Birth Will Occur.—According to Knibbs, statistician for Australia, the probability of a nuptial first birth occurring in less than one year after marriage is 0.4946 for age 15 of the wife; 0.7770 for age 18; 0.9176 for age 21; the maximum, or 0.9771, for age 25; 0.9075 for age 30; 0.6748 for age 35; 0.3245 for age 40, and 0.0622 for age 45. The foregoing statsitics are based on the supposition that the husband is approximately the same age as the wife. If he is younger or older than the wife, the probability will be affected accordingly.

SQUAMOUS-CELL EPITHELIOMA OF THE LIP

A STUDY OF FIVE HUNDRED AND THIRTY-SEVEN CASES *

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Of all the malignant neoplasms with which man is afflicted, few cause more concern and inconvenience than that of epithelioma of the lip. In the past, pathologists have been content to classify cancer of the lip as cancer, without any distinction as to the degree of malignancy. It is a well established fact that some cancers of the lip are fatal to patients and others are not. There must be a reason for this. One theory is that some persons are resistant to cancer, and this seems to be borne out in a certain percentage of cases.

Undoubtedly, a large proportion of cancer cells are destroyed by the defense cells of the body; of these, the fibrous connective tissue cell is the most important, since it cuts off nourishment from the cancer cells.

The endothelial leukocyte and lymphocyte evidently also play an important rôle in the destruction of cancer cells, for practically always they may be seen in the neighborhood of a cancerous growth. Foreign body giant cells that are most probably formed from the endothelial leukocytes are not infrequently found lying adjacent to cancer cells.

The most important factor in squamous-cell epithelioma of the lip seems to be the degree of cellular activity. The cells of some epitheliomas of the lip show a marked tendency to differentiate, that is, to produce a growth similar to the normal; the pearly body is an example. The pearly body corresponds to the horny layer of the epidermis. In other squamous-cell epitheliomas there is no differentiation whatever. In the large majority of growths whose cells show no tendency to differentiate, or at least very little, there are many mitotic figures.

In studying these epitheliomas, therefore, it occurred to me that they should be graded according to differentiation and mitosis, special stress being laid on the former. The grading was made on a basis of 1 to 4 and absolutely independent of the clinical history. If an epithelioma shows a marked tendency to differentiate, that is, if about three fourths of its structure is differentiated epithelium and one fourth undifferentiated, it is graded 1; if the differentiated and undifferentiated epithelium are about equal, it is graded 2; if the undifferentiated epithelium forms about three fourths and the differentiated about one fourth of the growth, it is graded 3; if there is no tendency of the cells to differentiate, it is graded 4. Of course the number of mitotic figures and the number of cells with single large deeply staining nucleoli (one-eyed cells) play an important part in the grading.

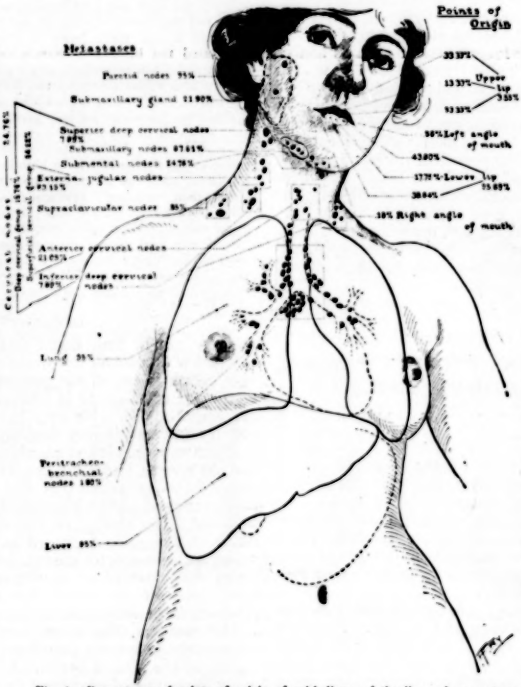

Fig. 1.—Percentages of points of origin of epithelioma of the lip, and percentages of location of metastasis.

Some epitheliomas of the lip are very active and from the start show little or no tendency to differentiate; some grow more malignant with time, and others increase in malignancy and then retrogress. Unquestionably an epithelioma of a low grade of malignancy is made more malignant by irritation with chemicals such as hydrochloric or nitric acid, silver nitrate or arsenic paste.

Chronic ulcers of the lip, like chronic ulcers of the stomach, should be examined very closely for cancer, provided syphilis has been eliminated. MacCarty [1] has demonstrated early cancer in the epithelium at or near the edge of gastric ulcers; practically the same process is found in early cancer or ulcer of the lip. In the lip the cancer starts in the stratum germinativum of the epithelium at or near the border of the ulcer. Not all cancers of the lip are preceded by ulcers, but the majority are.

I shall present the facts in statistical form and make the deductions, not from one, but from various standpoints: (1) the duration and size of the lesion; (2) the

* From the Section on Surgical Pathology, Mayo Clinic.
* Presented before the Richmond Academy of Medicine and Surgery, Richmond, Va., Nov. 25, 1919, and before the Roanoke Academy of Medicine, Roanoke, Va., Dec. 1, 1919.

1. MacCarty, W. C.: Pathology and Clinical Significance of Gastric Ulcer: From a Study of Material from Two Hundred and Sixteen Partial Gastrectomies for Ulcer, Ulcer and Carcinoma, and Carcinoma. Surg., Gynec. & Obst. 10: 449-462, 1910.

use or nonuse of tobacco; (3) the use or nonuse of caustics, pastes or plasters, etc., before treatment at the clinic; (4) metastasis or no metastasis; (5) cellular activity, and (6) other points of general interest.

Fig. 2 (a 188878).—Typical elevated or wartlike epithelioma of the lip.

CONCLUSIONS

1. The 537 cases of squamous-cell epithelioma of the lip in this series represent 26.85 per cent. of 2,000 cases of general epithelioma.

2. Squamous-cell epithelioma of the lip occurs more often in males than in females; the proportion is 49: 1.

TABLE 1.—SQUAMOUS-CELL EPITHELIOMA OF THE LIP: FIVE HUNDRED AND THIRTY-SEVEN CASES (26.85 PER CENT. OF TWO THOUSAND CASES OF GENERAL EPITHELIOMA)

Patients	537	
		Per Cent.
Males	526	(97.95)
Females	11	(2.05)
Age:		
Youngest patient		21
Oldest patient		97
Average age of patients		57.3
Occupation:		Per Cent.
Farmer		56.7
Laborer		9.0
Merchant		3.83
Traveling salesman		2.87
Railroad employee		2.87
Carpenter		2.68
Lawyer		1.34
Blacksmith		1.15
Clerk		1.15
Other occupations 59, each below 1 per cent.		18.4
Family history of malignancy		14.9
Previous lesion at site of cancer:		
Sore or ulcer (coldsore, 10.6 per cent.)		63.3
Crack		4.1
Leukoplakia		3.7
Tobacco:		
Patients using tobacco		80.49
Patients not using tobacco		19.51
Females using tobacco (smoke)		45.45
Females not using tobacco		45.45
Methods of using tobacco:		
Patients who smoke only		69.82
Patients who chew only		6.31
Patients who smoke and chew		23.5
Patients who use snuff		0.35

TABLE 1.—*Continued*

	Per Cent.
Total number of smokers	93.33
Total number of chewers	29.82
Total number of snuffers	0.35
Methods of smoking:	
Pipe only	40.69
Cigars only	19.18
Pipe and other methods and with chewing	37.79
Cigars with other methods and with chewing	31.97
Total number of pipe smokers	78.48
Total number of cigar smokers	51.16
Total number of cigaret smokers	1.16
History of injury	8.38
	Years
Average duration of lesion	2.58
Longest duration of lesion	28.00
Shortest duration of lesion	0.08
	Cm.
Greatest diameter	12.5
Average greatest diameter	2.4
Origin of lesion:	Per Cent.
Lower lip	95.69
Upper lip	3.55
Left angle of mouth	0.56
Right angle of mouth	0.18
Lower lip:	
Left lower lip	43.60
Right lower lip	38.64
Middle lower lip	17.75
Upper lip:	
Left upper lip	53.33
Right upper lip	33.33
Middle upper lip	13.33

TABLE 2.—FIVE HUNDRED MEN WITHOUT EPITHELIOMA OF THE LIP

Average age, years	36.07
	Per Cent.
Users of tobacco	78.6
Nonusers of tobacco	21.4
Methods of using tobacco:	Per Cent.
Smoke only	82.95
Chew only	4.32
Smoke and chew	12.72
Snuff	0.20
Total number of smokers	95.67
Total number of chewers	17.04
Total number of snuffers	0.20
Methods of smoking:	
Pipe only	6.11
Cigars only	16.48
Cigarets only	26.32
Pipe and other methods, and chewing	31.91
Cigars and other methods, and chewing	42.02
Cigarets and other methods, and chewing	30.05
Total number of pipe smokers	38.03
Total number of cigar smokers	58.51
Total number of cigaret smokers	59.04

It occurs in patients past middle life; their average age is 57.3 years.

3. The disease occurs most often in farmers; they represent 56.7 per cent. of the cases.

4. A family history of malignancy plays a negligible part.

5. The site of the cancer was preceded by a sore or an ulcer in 63.3 per cent. of the cases.

6. About one fifth of all the patients do not use tobacco, while one half of the female patients do not use it.

Fig. 3 (a 265421).—Typical depressed or ulcer-like epithelioma of the lip.

7. Of the patients using tobacco, 93.33 per cent. smoke; 78.48 per cent. of these use a pipe.

8. A comparison of 500 men without epithelioma of the lip with the 537 patients with epithelioma of the lip shows that the percentage of tobacco users and non-tobacco users is practically the same; 78.6 per cent.

users and 21.4 per cent. nonusers in the former group, and 80.49 per cent. users and 19.51 per cent. nonusers in the latter group, but that the average age of the men

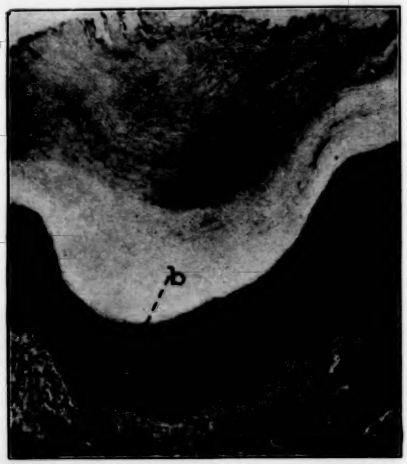

Fig. 4 (a 21283).—Marked leukoplakia of the lip, characterized by increase of (*a*) horny layer of epidermis, and (*b*) basal layer.

without epithelioma of the lip is about nineteen years less than the average age of the patients with epithelioma of the lip at the time of onset.

9. The most remarkable difference in a comparison of the patients with epithelioma of the lip and the men without epithelioma of the lip is in the method of smoking. The total number of pipe smokers in the former is 78.48 per cent. and the total number of cigaret smokers is only 1.16 per cent., while in the latter the total number of pipe smokers has dropped to 38.03 per cent., and the total number of cigaret smokers has risen to 59.04 per cent.

10. A history of injury plays a negligible part.

TABLE 3.—TREATMENT ELSEWHERE IN SQUAMOUS-CELL EPITHELIOMA OF THE LIP

	Per Cent.
Nonsurgical:	
1. One or more treatments alone or in various combinations of acids, carbon dioxid, copper sulphate, electricity, mercury, paste or plaster, potassium iodid, radium, roentgen ray, scarlet red, shoemakers' wax, and silver nitrate	29.05
2. Paste or plaster alone or in combination with other nonsurgical treatments	51.28
3. Caustics (acids or silver nitrate) alone or in combination with other nonsurgical treatments	35.89
4. Roentgen ray alone or in combination with other nonsurgical treatments	18.58
5. Paste or plaster alone or in combination with other nonsurgical treatments (proportion of all epitheliomas of lip)	14.89
6. Caustics (acids or silver nitrate) alone or in combination with other nonsurgical treatments (proportion of all epitheliomas of lip)	10.42
7. Roentgen ray alone or in combination with other nonsurgical treatments (proportion of all epitheliomas of lip)	5.4
Surgical:	
1. One or more operations	17.87
2. Excision of growth from lip without removing lymph nodes	53.12
3. Excision of V from lip without removing lymph nodes	5.2
4. Excision of growth and one or more groups of lymph nodes	16.66
5. Excision of V from lip and one or more groups of lymph nodes	6.25
6. Miscellaneous	18.75
Surgical and nonsurgical:	
1. One or more operations and one or more treatments with acids, carbon dioxid, etc., alone or in various combinations	4.65
2. Operations without treatment with acids, carbon dioxid, etc., before or after operation	13.22
3. Treatment with acids, carbon dioxid, etc., without operation	24.39
4. Operation and treatment with acids, carbon dioxid, etc.	37.61

TABLE 4.—PATIENTS OPERATED ON AT THE MAYO CLINIC

	No.
Cases (96.08 per cent. of 537)	516
1. Excision of submental lymph nodes, submaxillary lymph nodes and salivary glands of both sides, and V-shaped excision of epithelioma of the lip (one operation) (39.34 per cent. of 516)	203
2. V-shaped or quadrilateral shaped excision of epithelioma of the lip (10.85 per cent. of 516)	56
3. Excision of submental lymph nodes, submaxillary lymph nodes, and salivary glands of both sides and quadrilateral shaped excision of epithelioma of the lip (one operation) (4.84 per cent. of 516)	25
4. Excision of submental lymph nodes and submaxillary lymph nodes and salivary glands on one side, and V-shaped excision of epithelioma of the lip (one operation) (3.29 per cent. of 516)	17
5 Unilateral block dissection (one operation) (2.9 per cent. of 516)	15
6 Miscellaneous (various combinations of operations, cauteries, excisions of specimens for diagnosis, at one time or at different times) (38.76 per cent. of 516)	200
REMOVAL OF LYMPH NODES AND SALIVARY GLANDS	
Cases	449
1. Submental lymph nodes (97.1 per cent. of 449)	436
2. Submaxillary lymph nodes and salivary glands (unilateral) (12.91 per cent. of 449)	58
3. Submaxillary lymph nodes and salivary glands (bilateral) (84.18 per cent. of 449)	378
4. Cervical lymph nodes (16.7 per cent. of 449)	75
5. Block dissections (alone or combined with other operations) (10.02 per cent. of 449)	45
6. Cases in which the lymph nodes were removed months or years after the removal of the epithelioma of the lip (2.44 per cent. of 449)	11
7. Lymph nodes removed (one or more groups) (87.01 per cent. of 516)	449
8. Cases in which no lymph nodes were removed (12.98 per cent. of 516)	67
PATIENTS WITH INOPERABLE EPITHELIOMA	
Cases (3.9 per cent. of 537)	21

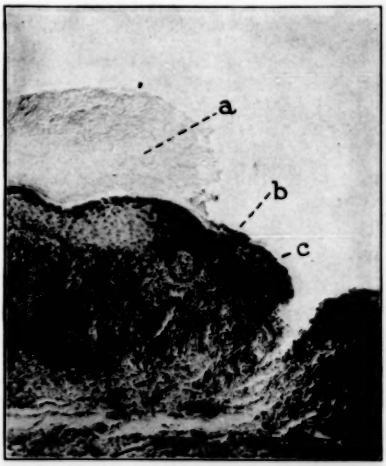

Fig. 5 (a 152243).—Ulcer associated with a leukoplakia of the lip: *a*, leukoplakia; *b*, junction of epidermis and ulcerated area; *c*, lymphocytes.

11. The duration of the lesion shows a marked variation, from 0.08 years to 28 years, with an average of 2.58 years.

Fig. 6 (a 98158).—Grade 1 epithelioma of the lip with marked differentiation; low degree of malignancy; patient well five years after operation: *a*, epithelioma; *b*, normal epithelium.

12. The greatest diameter of any lesion is 12.5 cm.; the average, 2.4 cm.

13. The lesion originated on the lower lip in 95.69 per cent. of the cases, on the upper lip in 3.55 per cent., at the left angle of the mouth in 0.56 per cent., and at the right angle of the mouth in 0.18 per cent.

TABLE 5.—PATHOLOGIC FINDINGS IN CASES IN WHICH LYMPH NODES AND SUBMAXILLARY SALIVARY GLANDS WERE REMOVED

	No.	Per Cent.
Cases	449	
No metastasis found	344	76.62
Metastasis found	105	23.38
Submaxillary lymph nodes alone (one side)	44	41.90
Submaxillary lymph nodes and salivary glands (one side)	13	12.38
Submaxillary lymph nodes (one side) and submental lymph nodes	7	6.66
Submaxillary lymph nodes, salivary glands, and superior superficial cervical lymph nodes (one side)	6	5.71
Submental lymph nodes alone	5	4.76
Submaxillary lymph and superficial cervical lymph nodes (one side)	6	5.71
Submaxillary lymph nodes (both sides) and submental lymph nodes	5	4.76
Submaxillary lymph nodes (both sides), submental and anterior jugular lymph nodes (one side)	3	2.85
Miscellaneous (submaxillary lymph nodes and salivary glands, submental, cervical, parotid, supraclavicular and peribronchial lymph nodes; lung and liver, alone or in various combinations	16	15.23
Submaxillary lymph nodes, total involvement	92	87.61
Submaxillary salivary glands, total involvement	23	21.90
Submental lymph nodes, total involvement	26	24.76
Cervical lymph nodes (one or more groups)	26	24.76
Superior deep cervical nodes	3	7.89
Inferior deep cervical nodes	3	7.89
Exterior jugular nodes	24	63.15
Anterior cervical nodes	8	21.05
Supraclavicular nodes, total involvement	1	0.95
Parotid lymph nodes, total involvement	1	0.95
Peribronchial nodes, total involvement	2	1.90
Lung, total involvement	1	0.95
Liver, total involvement	1	0.95
Submaxillary lymph nodes, total involvement on both sides	13	12.38
Cervical nodes, total involvement on both sides	2	1.90

TABLE 6.—GRADE OF FIVE HUNDRED AND THIRTY-SEVEN CASES ON A BASIS OF 1 TO 4, ACCORDING TO CELLULAR ACTIVITY

	No.	Per Cent.
Grade 1	85	15.82
Grade 2	333	62.01
Grade 3	113	21.04
Grade 4	6	1.11

DURATION AND SIZE OF EPITHELIOMA ACCORDING TO GRADE

	Grade 1	Grade 2	Grade 3	Grade 4
	Years	Years	Years	Years
Longest duration	10.00	25.00	28.00	2.00
Shortest duration	0.10	0.08	0.08	0.91
Average duration	1.43	2.77	3.33	1.29
	Cm.	Cm.	Cm.	Cm.
Largest size	5.00	10.00	7.50	2.00
Smallest size	0.20	0.30	0.20	1.80
Average size	1.23	2.28	3.25	1.9

EPITHELIOMA PRECEDED BY ULCER

	No.	Per Cent.
Grade 1	52	15.29
Grade 2	225	66.17
Grade 3	60	17.64
Grade 4	3	0.88

PROPORTION OF EACH GRADE PRECEDED BY ULCER

Grade 1	61.17 per cent. of	85
Grade 2	67.56 per cent. of	333
Grade 3	53.09 per cent. of	113
Grade 4	50.00 per cent. of	6

INOPERABLE EPITHELIOMA ACCORDING TO GRADE

Grade 1	Grade 2	Grade 3	Grade 4
0	12	7	2

14. Twenty-nine and five hundredths per cent. of the patients were treated with acid, paste or plaster, etc., before they entered the clinic.

15. Seventeen and eighty-seven hundredths per cent. of the patients were operated on before they entered the clinic.

16. Ninety-six and eight hundredths per cent. of the patients were operated on at the clinic.

Fig. 7 (a 64692).—Grade 1 epithelioma of the lip showing marked differentiation, although it is of a slightly higher degree of malignancy than the epithelioma shown in Figure 5; patient well seven years after operation; *a*, completely differentiated area; *b*, partially differentiated cells; *c*, normal epithelium.

17. In 87.01 per cent., the regional lymph nodes were removed.

18. Of the 449 cases in which the lymph nodes or salivary glands were removed, metastasis was demonstrated in 23.38 per cent.; the submaxillary lymph nodes were involved in 87.61 per cent.; the submaxillary salivary glands in 21.90 per cent.; the submental lymph

Fig. 8 (a 99884).—Grade 2 epithelioma of the lip; not so much differentiation as in epithelioma shown in Figure 6; patient died from epithelioma of the lip four and one-half years after operation: *a*, completely differentiated area or pearly body; *b*, undifferentiated cells.

TABLE 7.—RESULTS

GENERAL ULTIMATE RESULTS

Patients traced (operable, 306; inoperable, 8) (58.47 per cent. of total)	314
Patients operated on	306
Patients dead (40.52 per cent.)	124
Patients alive (59.47 per cent.)	182
Good result (no recurrence (92.85 per cent. of 182)	169
Fair result (slight recurrence) (6.04 per cent. of 182)	11
Bad result (no improvement) (1.09 per cent. of 182)	2

DURATION OF LIFE SINCE LAST OR ONLY OPERATION, ACCORDING TO RESULT

	Good Result	Fair Result	Bad Result
	Years	Years	Years
Longest	14.39	13.68	2.80
Shortest	1.25	0.95	0.49
Average	7.76	6.8	1.65

MORTALITY

Deaths (42.05 per cent. of 314)	132
Deaths of patients with operable epithelioma (93.93 per cent. of 122)	124
Deaths of patients with inoperable epithelioma (6.06 per cent. of 132)	8

TABLE 7.—*Continued*

CAUSE OF DEATH OF PATIENTS OPERATED ON: DATA FROM RELATIVE, HOME PHYSICIAN, OR PATHOLOGIC RECORDS OF THE CLINIC

	No.	Per Cent.
Known cause	99	
Cancer of the lip	63	63.63
Heart disease	5	5.05
Nephritis	5	5.05
Pneumonia	4	4.04
Stomach trouble	3	3.03
Paralysis	3	3.03
"Following operation elsewhere"	3	3.03
Fall	2	2.02
Carcinoma of the stomach	1	1.01
Tumor of the stomach	1	1.01
Abdominal tumor	1	1.01
Diabetes	1	1.01
Carcinoma of the sigmoid	1	1.01
Sepsis	1	1.01
Tuberculosis	1	1.01
Hepatic disease	1	1.01
Cardiac and hepatic disease	1	1.01
Sarcoma of the liver	1	1.01
Lung trouble	1	1.01
Unknown	25	

CAUSE OF DEATH OF PATIENTS WHO DIED IN THE MAYO CLINIC (ALL OPERABLE)

Chronic nephritis and arteriosclerosis (more than 2 years after operation)	1
Epithelioma and abscess of the neck (52 days after operation)	1
Epithelioma (25 days and 4 months, respectively, after operation)	2
Pneumonia (few days after operation)	3
Sepsis (12 days after operation)	1
Total (1.55 per cent. of 516)	8
Actual operative mortality (0.77 per cent. of 516)	4

Fig. 9 (a 59017).—Grade 2 epithelioma of the lip; about the same degree of malignancy as in epithelioma shown in Figure 7; patient well more than seven years after operation: *a*, partially differentiated cells; *b*, undifferentiated cells.

TABLE 8.—TOBACCO USERS OPERATED ON

	Grade 1	Grade 2	Grade 3	Grade 4
Number of patients	37	118	37	3
Patients living	34 (91.81% of 37)	92 (77.96% of 118)	10 (27.02% of 37)	
Patients living, good result	33 (97.05% of 34)	85 (92.39% of 92)	10 (100% of 10)	
Patients living, fair result	1 (2.94% of 34)	6 (6.52% of 92)		
Patients living, poor result		1 (1.08% of 92)		
Patients dead	3 (8.10% of 37)	26 (22.63% of 118)	27 (72.97% of 37)	3 (100% of 3)
Cause unknown		6	5	1
Good result	2 (66.66% of 3)	6 (30.00% of 20)	7 (31.81% of 22)	
Fair result	1 (33.33% of 3)			
Poor result		14 (80.00% of 20)	15 (68.18% of 22)	2 (100% of 2)

	Per Cent.
Total good result (patient recovered from epithelioma and is living, or recovered from epithelioma and died from other cause)	78.14
Total fair result (patient living with slight recurrence or died from other cause)	4.37
Total poor result (patient lived with no improvement or died from epithelioma)	17.48

TABLE 9.—NONUSERS OF TOBACCO OPERATED ON

	Group 2	Group 3	Group 4
Number of patients	7	37	7
Patients living	6 (85.71% of 7)	29 (78.37% of 37)	4 (57.14% of 7)
Patients living, good result	6 (100% of 6)	29 (100% of 29)	2 (50.00% of 4)
Patients living, fair result			2 (50.00% of 4)
Patients dead	1 (14.28% of 7)	8 (21.62% of 37)	3 (42.85% of 7)
Cause unknown		1	
Good result	1 (100% of 1)	5 (71.42% of 7)	
Poor result		2 (28.57% of 7)	3 (100% of 3)

TOTAL RESULTS

	Per Cent.
Total good result (patient recovered from epithelioma and is living, or recovered from epithelioma and died from other cause)	86.00
Total fair result (patient living with slight recurrence)	4.00
Total poor result (patient died from epithelioma)	10.00

TABLE 10.—PATIENTS OPERATED ON TREATED WITH PASTES, PLASTERS, ACIDS, ETC., BEFORE ENTERING THE CLINIC

Patients concerning whom information has been received	94
Patients living (53.19 per cent. of 94)	50

	Grade 1	Grade 2	Grade 3	Grade 4
Patients living, good result	5 (11.11% of 45)	34 (75.55% of 45)	6 (13.33% of 45)	
Patients living, fair result		1 (33.33% of 3)	2 (66.66% of 3)	
Patients living, poor result		1 (50.00% of 2)	1 (50.00% of 2)	
Patients dead				44 (46.80% of 94)
Cause unknown		4	3	
Good result		5 (55.55% of 9)	4 (44.44% of 9)	
Poor result		9 (32.14% of 28)	16 (57.14% of 28)	3 (10.71% of 28)

TOTAL RESULTS

Total good result (patient recovered from epithelioma and is living, or recovered from epithelioma and died from other cause)	62.06% of 87
Total fair result (patient living with slight recurrence)	3.44% of 87
Total poor result (patient living with no improvement or died from epithelioma)	34.48% of 87

TABLE 11.—PATIENTS OPERATED ON NOT TREATED WITH PASTES, PLASTERS, ACIDS, ETC., BEFORE ENTERING THE CLINIC

Patients concerning whom information has been received	212
Patients living (61.79 per cent. of 212)	131

	Grade 1	Grade 2	Grade 3	Grade 4
Patients living, good result	34 (27.64% of 123)	83 (67.47% of 123)	6 (4.87% of 123)	
Patients living, fair result	1 (12.50% of 8)	7 (87.50% of 8)		
Patients dead				81 (38.20% of 212)
Cause unknown		10	9	1
Good result	4 (16.00% of 25)	17 (68.00% of 25)	4 (16.00% of 25)	
Fair result	1 (100.00% of 1)			
Poor result		18 (51.30% of 35)	17 (48.45% of 35)	

TOTAL RESULTS

Total good result (patient recovered from epithelioma and is living, or recovered from epithelioma and died from other cause)	77.08% of 192
Total fair result (patient living with slight recurrence or died from other cause)	4.68% of 192
Total poor result (patient died from epithelioma)	18.22% of 192

TABLE 12.—PATIENTS WITH METASTASIS OPERATED ON

Patients concerning whom no information was received	36 (34.29% of 105)
Patients from whom information was received	69 (65.71% of 105)
Patients living	12 (17.39% of 69)

	Grade 1	Grade 2	Grade 3	Total Number of Good Results
Patients living, good results*		5 (50% of 10)	5 (50% of 10)	10 (83.33% of 12)
Patients living, fair result*			1 (100% of 1)	
Patients living, poor result*			1 (100% of 1)	

DURATION OF LIFE OF PATIENTS WITH GOOD RESULT FROM LAST OR ONLY OPERATION

Longest	11.73 years
Shortest	3.29 years
Average	6.18 years
Patients dead	57 (82.6% of 69)

Grade 1	Grade 2	Grade 3	Grade 4
	15 (34.09% of 44)	26 (59.09% of 44)	3 (6.81% of 44)

	Years
Longest duration of life from last or only operation of patients who died from epithelioma	2.5
Shortest duration of life from last or only operation of patients who died from epithelioma	0.066
Average duration of life from last or only operation of patients who died from epithelioma	0.79
Longest duration of life from last or only operation of patients who died from epithelioma or other cause	4.88
Shortest duration of life from last or only operation of patients who died from epithelioma or other cause	0.016
Average duration of life from last or only operation of patients who died from epithelioma or other cause	0.86

CAUSE OF DEATH

Epithelioma	44 (91.66% of 48)
Lung trouble	1 (2.08% of 48)
Sepsis	1 (2.08% of 48)
Heart disease	1 (2.08% of 48)
Pneumonia	1 (2.08% of 48)
Not stated	9

* In the ten patients with metastasis who reported a good result, and in the one who reported a fair result, the submaxillary lymph nodes on only one side were involved. In the one patient who reported a poor result, the submaxillary lymph nodes and the salivary gland on only one side were involved.

TABLE 13.—PATIENTS WITH METASTASIS IN SUBMAXILLARY LYMPH NODES ON ONE SIDE ONLY

Patients concerning whom no information was received	14 (30.81% of 44)	Patients living, fair result	1 (9.09% of 11)
Patients concerning whom information was received	30 (69.18% of 44)	Patients dead	19
Patients living	11	Patients dead from epithelioma	14 (82.35% of 17)
Patients living, good result	10 (90.9% of 11)	Patients dead from other cause	3 (17.64% of 17)
		Patients dead from cause not stated	2

TABLE 14.—PATIENTS WITHOUT METASTASIS OPERATED ON

Patients concerning whom no information was received	145
Patients concerning whom information was received	198
Patients living (76.26% of 198)	151

	Grade 1	Grade 2	Grade 3	Total Number of Good Results
Patients living, good result	35 25.00% of 140)	99 (70.71% of 140)	6 (4.28% of 140)	140 (92.71% of 151)
Patients living, fair result	1 (10.00% of 10)	8 (80.00% of 10)	1 (10.00% of 10)	
Patients living, poor result	.....	1 (100% of 1)	.....	
Patients dead	.....	.....	.....	47 (23.73% of 198)
Cause unknown	.....	10		
Good result	3 (12.50% of 24)	18 (75.00% of 24)	3 (12.50% of 24)	
Fair result	1 (100% of 1)			
Poor result	.....	9 (75.00% of 12)	3 (25.00% of 12)	

Total good result (patient recovered from epithelioma and is living or recovered from epithelioma and died from other cause)	164 (87.23% of 188)
Total fair result (patient living with slight recurrence, or died from other cause)	11 (5.85% of 188)
Total poor result (patient living with no improvement, or died from epithelioma)	13 (6.91% of 188)

TABLE 15.—PATIENTS WITH AND WITHOUT METASTASIS OPERATED ON

	Grade 1	Grade 2	Grade 3	Grade 4
Patients with metastasis	.....	39 (37.14% of 105)	63 (60.00% of 105)	3 (2.85% of 105)
Patients without metastasis	67 (19.47% of 344)	248 (72.09% of 344)	29 (8.43% of 344)	

DURATION OF LESION BEFORE EXAMINATION AT CLINIC

	Years		Years
Longest duration (patient with metastasis)	28.00	Patient without metastasis	25.00
Shortest duration (patient with metastasis)	0.16	Patient without metastasis	0.08
Average duration (patient with metastasis)	3.27	Patient without metastasis	2.40

SIZE OF LESION AT THE TIME OF EXAMINATION AT THE CLINIC

	Cm.		Cm.
Largest size (patient with metastasis)	12.5	Patient without metastasis	10.00
Smallest size (patient with metastasis)	1.0	Patient without metastasis	0.2
Average size (patient with metastasis)	3.74	Patient without metastasis	2.01

ASSOCIATION OF EPITHELIOMA OF THE LIP WITH OTHER MALIGNANT NEOPLASMS

	Cases
Nonmelanotic melano-epithelioma on shoulder	1
Squamous-cell epithelioma of cheek	1
Squamous-cell epithelioma of bladder	1
Basal-cell epithelioma of eyelid	1
Adenocarcinoma of sigmoid	1
	5 (0.93% of 537)

TABLE 16.—DURATION OF LIFE AFTER OPERATION OF PATIENTS WITHOUT METASTASIS

ACCORDING TO GRADE

Good result:	Grade 1	Grade 2	Grade 3
Number of patients	35	98	6
	Years	Years	Years
Longest duration	14.39	14.31	12.22
Shortest duration	1.73	1.25	4.3
Average duration	7.59	7.54	7.17
Fair result:			
Number of patients	1	8	1
	Years	Years	Years
Longest duration	4.39	13.68	7.32
Shortest duration	.....	0.96	
Average duration	.....	7.54	

DURATION OF LIFE AFTER OPERATION OF PATIENTS OF ALL GRADES

	Good Result	Fair Result	Poor Result
	Years	Years	Years
Longest duration	10.19	.....	4.51
Shortest duration	0.36	.....	0.51
Average duration	4.47	6.73	1.85

DURATION OF LIFE AFTER OPERATION OF ALL PATIENTS WITHOUT METASTASIS

	Years
Longest duration	10.19
Shortest duration	0.36
Average duration	3.68

DURATION OF LIFE OF PATIENTS OF ALL GRADES

	Good Result	Fair Result
	Years	Years
Longest duration	14.39	13.68
Shortest duration	1.25	0.96
Average duration	7.53	7.2

DURATION OF LIFE AFTER OPERATION OF PATIENTS WITHOUT METASTASIS WHO ARE DEAD

Good result—Patients did not die from epithelioma:

	Grade 1	Grade 2	Grade 3
Number of patients	3	18	3
	Years	Years	Years
Longest duration	5.8	10.19	9.3
Shortest duration	3.5	0.36	2.02
Average duration	4.28	4.24	6.07

Fair result—Patients did not die from epithelioma but had slight recurrence:

Number of patients	1
	Years
Longest duration	6.93

Poor result—Patient died from epithelioma:

	Grade 2	Grade 3
Number of patients	9	3
	Years	Years
Longest duration	4.51	1.52
Shortest duration	1.00	0.51
Average duration	2.15	0.95

nodes in 24.76 per cent., and the cervical lymph nodes in 24.76 per cent.

19. In a division of the epitheliomas according to cellular activity, on a basis of 1 to 4, Grade 1 represents

Fig. 10 (a 72479).—Grade 2 epithelioma of the lip: *a*, epithelioma; *b*, normal epithelium; *c*, lymphocytes

15.82 per cent.; Grade 2, 62.01 per cent.; Grade 3, 21.04 per cent., and Grade 4, 1.11 per cent.

20. The average duration of the lesion according to grade is longest in Grade 3, 3.33 years, and shortest in Grade 4, 1.29 years.

21. The average size of the lesion according to grade is largest in Grade 3, and smallest in Grade 1.

22. Of the patients operated on and traced, 40.52 per cent. are dead and 59.47 per cent. are alive.

23. Of the living patients, 92.85 per cent. report a good result, having been free from the disease on an average of 7.76 years.

24. Of the patients operated on who have died, concerning whom information has been received, 63.63 per cent. died from epithelioma.

25. Eight, or 1.55 per cent., of the patients who were operated on died in the clinic, while the actual operative mortality was only 0.77 per cent.

26. The users of tobacco who were operated on did not obtain quite so good total good results as the nontobacco users; 78.14 per cent. in the former, and 86 per cent. in the latter.

27. In the inoperable cases, the nontobacco users reached as high as 30.76 per cent.

28. The patients who were treated with pastes, plasters, etc., before entering the clinic did not get such good total good results as those who were not so treated; 62.06 per cent. in the former and 77.08 per cent. in the latter; moreover, 31.91 per cent. of the former who were operated on had metastasis, while only 19.48 per cent. of the latter operated on had metastasis.

29. Of the patients with metastasis, 17.39 per cent. are living and 82.6 per cent. are dead.

30. Of the living who had metastasis, 83.33 per cent. report a good result. In these patients the submaxillary lymph nodes on only one side were involved.

31. No patient with the cervical nodes or more than one group of any lymph nodes involved has been reported living.

Fig. 11 (a 38260).—Grade 3 epithelioma of one of the left submaxillary lymph nodes, secondary to epithelioma of the lip; slight differentiation; the patient died from epithelioma five months after the last operation, and twenty months after the onset of the disease: *a*, partially differentiated cells; *b*, undifferentiated cells.

TABLE 17.—RESULTS FOLLOWING OPERATION ACCORDING TO GRADE

	Grade 1	Grade 2	Grade 3	Grade 4
Information received from patients operated on	45 (52.94% of 85)	192 (59.81% of 333)	65 (62.26% of 113)	4 (100% of 4)
Patients living	40 (88.88% of 45)	128 (66.66% of 192)	16 (24.6% of 65)	
Patients living, good result	39 (97.5% of 40)	119 (92.96% of 128)	13 (81.25% of 16)	
Patients living, fair result	1 (2.5% of 40)	8 (6.25% of 128)	2 (12.50% of 16)	
Patients living, poor result	.....	1 (0.78% of 128)	1 (6.25% of 16)	
Patients dead	5 (11.12% of 45)	64 (33.33% of 192)	49 (75.38% of 113)	4 (100% of 4)
Good result	4 (80.00% of 5)	23 (45.09% of 51)	6 (15.78% of 38)	
Fair result	1 (20.00% of 5)	.....	.....	
Poor result	.....	28 (54.90% of 51)	32 (84.21% of 38)	4 (100% of 4)
Not stated	.....	13	11	
Total good result (patient recovered from epithelioma and is living or recovered from epithelioma and died from other cause)	43 (95.55% of 45)	142 (79.32% of 179)	19 (35.18% of 54)	
Total fair result (patient living with slight recurrence or died from other cause)	2 (4.45% of 45)	8 (4.46% of 179)	2 (3.70% of 54)	
Total poor result (patient living with no improvement or died from epithelioma)	.....	29 (16.20% of 179)	33 (61.11% of 54)	4 (100% of 4)
Total result not stated	.....	13	11	

32. Of the patients reported dead who had metastasis, 91.66 per cent. died from epithelioma.

33. If a patient has the submaxillary lymph nodes on one side only involved, he has a 1 to 3 chance of getting a good result, and will be living and well on an average of 6.18 years after operation.

34. Of the patients operated on in whom no metastasis was demonstrated, 76.26 per cent. are living, and 23.73 per cent. are dead; of the living, 92.71 per cent. report a good result.

35. The average duration of the lesion in the patients with metastasis is 3.27 years, as compared with 2.40 years in those without metastasis; the average size of the lesion is 3.74 cm. in the patients with metastasis, as compared with 2.01 cm. in those without metastasis.

36. Among the known causes of death, deaths from epithelioma were as follows: none of Grade 1; 54.90 per cent. of Grade 2; 84.21 per cent. of Grade 3, and 100 per cent. of Grade 4.

Fig. 12 (a 74162).—Grade 4 epithelioma of the liver secondary to epithelioma of the right side of the upper lip; no differentiation; numerous mitotic figures; high degree of malignancy; the patient died four and one-half months after the last operation, and eleven months after the onset of the disease, with metastatic epithelioma of the lymph nodes of the right side of the neck, right peritracheobronchial nodes, right lung, and liver: *a*, mitotic figures.

37. Some malignant neoplasm was associated with the epithelioma of the lip in 0.93 per cent. of the patients.

The First Book on Pediatrics.—The first book ever published on children's diseases is probably the work by Omnibono Ferrarii, printed in Bruges, 1557. The book is in Latin, in quarto, has 196 pages, besides three chapters with 12 pages of aphorisms. The book is dedicated to the College of Physicians and Philosophers of Verona. The dedicatory expresses the view that every person should have two purposes in life: First, avoid laziness so as not to waste his life, and second, show his gratitude to the persons from whom he has received any favors. According to the author, his book was written after having noticed that the ancient physicians who wrote about children did not say anything about nurses' diseases nor describe methodically the different diseases that might befall children.

THE INTESTINAL TUBE

ITS SIGNIFICANCE AND APPLICATIONS *

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In the descriptions contained in this article, I am dealing primarily with the introduction of the rubber tube into the intestine beyond the duodenum. I have therefore taken the liberty of referring to it as an intestinal tube, rather than a duodenal tube, for the latter might imply that its use is limited to the duodenum.

The primary purpose of this study of a series of roentgenograms of the intestinal tube in a given case is to demonstrate more clearly the principle of the detachable bulb, as outlined in a preceding communication.[1] In that article, I described a modification of the duodenal tube, which, I believe, enhances its usefulness in intestinal feeding. In the first place, several openings were made along the course of the tube, up to a distance of about 1½ inches from its end, each opening about the size of its lumen. The purpose of this was to minimize the possibility of occlusion which occasionally occurs. Of greater value was the change from an end-piece that was permanently attached during its sojourn in the intestine, to an end-piece that could be detached shortly after the tube had reached its destination. This modification was considered of importance because of the possibilities of danger resulting from a prolonged direct contact of a weighted substance with the delicate intestinal mucous membrane. The detachable bulb not only obviates this factor, but as a direct result, makes it possible to use the tube in the intestine over a longer period of time, a factor which might be of value in the more chronic affections. I was able to accomplish this modification by sewing the metallic bulb to the end of the rubber tube with catgut. Plain catgut was first used, but in a number of cases, owing probably to a contraction of the pyloric sphincter, the tube remained in the stomach for several hours and the gastric secretions had digested the catgut, causing the premature detachment of the bulb. Without a weight at the end of the tube, there was a tendency for it to remain coiled within the stomach, the end failing to pass into the intestine. After experimenting with different kinds of catgut, I decided on the use of chromicized catgut No. 4, as this gave the most satisfactory results.

To illustrate this principle more clearly, it was decided to take a series of roentgenograms from the time the tube was swallowed and the end had passed within the intestine, until the bulb had left the intestinal canal.

As soon as the clear bile colored fluid was obtained by aspiration, I had a roentgenogram taken, with the result shown in Figure 1. The roentgenogram was taken during the process of injecting a suspension of barium in buttermilk through the open end of the tube by means of a syringe. The picture obtained showed the end of the tube within the intestine. From then on, roentgenograms were taken at varying intervals, with the idea of obtaining information regarding the time when the detachment of the bulb from the end of the tube occurred; and finally, after the bulb had left

* From the Medical Service, U. S. Army General Hospital No. 41, Col. C. R. Snyder, Chief of Staff.

1. Buckstein, Jacob: Experiences with Duodenal Feeding at U. S. Army General Hospital No. 41, J. A. M. A. 73:670 (Aug. 30) 1919.

the intestinal canal and had been recovered from the stool, a roentenogram was obtained showing only the rubber tube in place.

This detachment of the bulb is clearly demonstrated in Figure 2. The last plate of this series (Fig. 3) was taken after the bulb had been recovered from the stool. As a rule, the bulb is recoverable from thirty-six hours to four days after the tube is swallowed. In one case, although the bulb became detached within thirty-six hours, the patient did not recover the bulb from the stool until the fortieth day.

In examining the series of plates, I noticed an interesting fact: In the same patient and with the same length of tubing the outline of the intestine was different in each succeeding picture, although at the time each roentgenogram was taken, the patient occupied the same prone position. To demonstrate this change more clearly I had another patient swallow the rubber tube for a distance of 120 cm. from the teeth. Roentgenograms were taken at varying intervals, as indicated in Figures 4, 5 and 6. Another series (Figs. 7, 8, 9 and 10) was taken at a distance of 130 cm. from the teeth, and still another series (Figs. 11 and 12) at a distance of 150 cm. from the teeth. In the intervals between the taking of the roentgenograms, the patients engaged in the ordinary motions of getting off the roentgen-ray table, walking, sitting down and arising, getting back on the table at the appointed time, and movements of a similar nature. In the different pictures of each series I noticed changes in outline, no two being alike although taken with the same length of tube in the same patient and in the prone position.

Fig. 1.—Shortly after the removal of intestinal fluid.

Fig. 2.—Thirty-two hours after swallowing the tube; bulb (indicated by arrow) detached.

Fig. 3.—Fifty hours after swallowing the tube, and shortly after recovering the bulb from the stool.

The series of pictures appeared to indicate what may perhaps best be referred to as a shifting motion of the intestinal coils. It would seem, on *a priori* grounds, that such a shifting motion must inevitably be expected when we realize that the many coils of intestine attached to the mesentery are freely movable within the abdominal cavity. As the tube outlines the intestine, any change in position of the intestine will be indicated by a concomitant change in the position of the tube.

To determine whether changes in the outline of the coils occurred while the patient continued in the prone position and did not move about between the taking of the roentgenograms, a series of plates was taken while the patient remained prone during the entire period. One picture was taken every five minutes during the course of one hour. On examination, practically no

Fig. 4.—Tube swallowed for a distance of 120 cm. from the teeth.

Fig. 5.—Roentgenogram taken one hour after swallowing the tube.

Fig. 6.—Two hours after swallowing the tube.

change in intestinal outline was visible in the different plates.

We may assume that the changes in outline in the various series were due to changes in the position of the body in the intervals between the taking of the pictures. We may conclude, first, that a roentgenogram of a rubber tube within the intestine gives us an indication of the outline of the intestine only at that particular time; secondly, that there is a continual change in the position of the intestinal coils brought about through bodily motion, and thirdly, that we have here an indication of one specific way in which exercise acts as a therapeutic measure in some cases of chronic constipation.

It is a plausible assumption that the movement of the intestinal coils will be increased as the result of the increased bodily motion. A marked increase in the shifting of the intestinal coils probably aids in the onward propulsion of material contained within the lumen. For this reason, apart from its value in toning up the entire system through its influence on the circulation, exercise is to be advocated where constipation occurs in those of sedentary habits.

While rhythmic segmentation and intestinal peristalsis are the prime factors in the mechanics of digestion, the shifting motion of the intestinal coils, clearly indicated in the illustrations, probably plays a real part in the mechanical process of propulsion.

The possibility of the introduction of the end of the rubber tube to different portions of the small intestine widens the field of gastro-enterology from a practical therapeutic standpoint, and also from the standpoint of the biochemistry, bacteriology and parasitology of the intestinal canal. Since the end of the tube may pass well within the intestinal canal, the principle of duodenal feeding may be extended in its application to intestinal feeding, which may perhaps find a use in the rare conditions of jejunal and gastrojejunal ulcers that may complicate a gastro-enterostomy, and perhaps also in the case of fistulas that might conceivably occur at different parts of the intestine.

The principle of transduodenal lavage was first emphasized by Jutte. While our ordinary enemas at best reach only a small portion of the intestinal canal, we have by means of lavage through the intestinal tube a method of cleansing the entire intestinal canal and ridding it of stagnating material. Oxygen insufflation, and the introduction of medication through the tube, have also been practiced. Not only may lavage and medication be employed in this way, but the ready

Fig. 7.—Tube swallowed for a distance of 130 cm. from the teeth.

Fig. 8.—Five minutes after swallowing the tube.

Fig. 9.—Fifteen minutes after swallowing the tube.

Fig. 10.—Two hours after swallowing the tube.

Fig. 11.—Tube swallowed for a distance of 130 cm. from the teeth.

Fig. 12.—Twenty-four hours after swallowing the tube.

passage of the tube to varying distances within the lumen of the intestine makes possible the direct introduction of therapeutic agents to definite parts along the course of the intestinal tract.

Of interest from a biochemical standpoint is the fact that we may obtain intestinal secretions for examination. Hitherto, our analysis of the gastro-intestinal secretions in the living human being has been practically limited to the secretions of the stomach and of the duodenum. The value of our results was enhanced through the methods of fractional examination of the gastric secretions as emphasized by Rehfuss, and of the fractional examination of the duodenal secretions emphasized by Einhorn. There is no mechanical difficulty in the way of obtaining secretions beyond the duodenum. I believe that analysis of these secretions may not only prove of theoretical interest, but also may ultimately throw light on some of the more obscure intestinal derangements.

SUMMARY

1. There is a distinct value in the principle of the detachable bulb for the construction of the intestinal tube when used for feeding.
2. The intestine is clearly delineated in a roentgenogram by means of the barium filled rubber tube.
3. The shifting motion of the intestinal coils, as indicated by the changing outline of the rubber tube, throws some light on the mechanics of propulsion and on the therapeutic value of exercise in constipation.
4. Direct introduction of therapeutic agents is made possible at specific portions of the intestine.
5. Secretions from different portions of the intestine below the duodenum may be obtained for the purpose of biochemical, parasitic and bacteriologic examinations.

THE TREATMENT OF ECZEMA*

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As is generally well known, many diseased conditions of the skin are classed as eczemas or dermatitides. The so-called trade or occupational eczemas under the newer classification are considered as dermatitides. In discussing the treatment of eczema, therefore, it must be borne in mind that while the disease is a clinical entity, it does not represent a definite pathologic process with well-defined etiology. While it is true that many external factors may precipitate the outbreak of eczema, it is commonly assumed that some peculiar predisposition to the disease exists. This is perhaps a metabolic error, because the same external noxae which bring about an outbreak of eczema in a susceptible person will not provoke the eruption in a normal one. Concerning this point a painstaking and thorough examination of the patient and minute attention to his history and habits are of value.

Changes in metabolism which predispose to eczema are not well understood. At times these inherent causes cannot be determined; at other times they may not be controllable. In all instances in which the internal causative factors are not apparent, or their discovery is delayed, the pathologic process should be treated as observed. The patient should be warned against contact with irritating substances which may produce inflammation of the skin. If, however, the underlying cause in a given case can be determined, its elimination must be accomplished or at least attempted.

Eczema most frequently affects printers, bakers, painters and plasterers; but washerwomen, janitors, and employees in certain chemical industries or those who constantly come in contact with various irritating substances, are likewise frequently sufferers from this disease. In this type of case the patient will, of course, be ordered to refrain from his work until he is completely cured. Even then, recurrences may be anticipated if the same occupation is followed. These untoward circumstances often make treatment and cure financially difficult for the patient. Such susceptible persons should be advised to change their trade or occupation if possible, so that recurrences may be avoided.

The treatment here described has been found safe and in the majority of cases satisfactory in my own work. The external treatment of eczema depends on the intensity, the stage of the disease, and its duration; in other words, on the clinical symptoms as interpreted from a pathologic point of view. Those substances which produce irritation of the skin should first be eliminated from the patient's surroundings. In severe and generalized or extensive cases the patient should not wear starched linen or other articles of dress which rub against the inflamed parts. He should be confined to his room and should not exert himself, so as not to become overheated and thus produce hyperemia, which aggravates the condition. Next, the skin should be treated with preparations which tend to alleviate the itching and to cause the inflammatory process to retrograde. There is no specific medication for the disease: each case requires therapy based on the clinical picture at the time the patient comes under treatment. The physician should not change too rapidly from one type of medication to another. If a given preparation or combination causes improvement, it should be continued until improvement ceases. Nothing is so fruitless, nothing causes more harm, than irrational, ever-changing therapeutics.

Fig. 1.—Eczema of the face with crusts and scales and papules at borders of the lesions.

ACUTE ECZEMA

In acute papular or papulovesicular eczema the skin is often so irritable that salves and ointments as well as pastes are poorly tolerated. In these instances applications of a mild alcoholic solution of 0.5 per cent. of salicylic acid followed by the use of a bland dusting powder are indicated every three or four hours.

	Gm. or C.c.
Salicylic acid	1.2
Diluted alcohol	240

Label: Apply to affected parts.

	Gm.
Starch	
Talcum	āā 60

Label: Use as dusting powder.

* Read before the Chicago Medical Society, Jan. 28, 1920.
* Photographs from the collection of Northwestern University Medical School, Department of Skin Diseases and Syphilology, courtesy of Dr. Lawless.

The alcoholic solution of salicylic acid has a slightly astringent action as well as a cooling effect, and the dusting powder affords desirable protection. In this way the eczematous outbreak can often be aborted and recovery obtained in a few days. On the other hand, the papules may prove resistant and while the associated erythema and swelling disappear, the papules become somewhat harder in consistency and

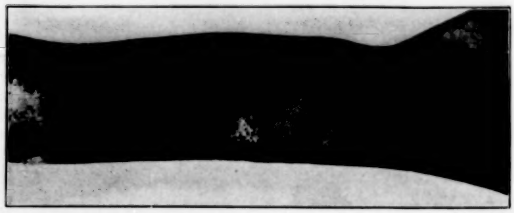

Fig. 2.—Marked subacute eczema of the right arm, with scales and crusts and papules at border of patch.

more apparent to the eye. At this stage the skin is not so irritable and may well tolerate ointments and pastes, followed by the application of a bland dusting powder, or a zinc oxid lotion may be used.

	Gm.
Zinc oxid	
Talcum āā	15
Petrolatum	30

Label: Apply to inflamed parts.

	Gm. or C.c.
Zinc oxid	
Starch	
Glycerin	
Distilled water āā	15

Label: Zinc oxid lotion.

Under this treatment, the acute cases become subacute, the papules lose their redness, and become darker or somewhat livid or brownish in hue. At this point a high dilution of some drug which hastens desquamation may be added to the ointment or paste. For example, tar preparations, such as the oil of cade or rectified oil of birch tar, ichthyol and its allied preparations, or salicylic acid, may be added.

	Gm. or C.c.
Zinc oxid	
Talcum āā	10
Petrolatum	20
Rectified oil of birch tar	3

Label: Tar-zinc paste.

The use of tar preparations is indicated especially at this stage because of their effect in controlling dilatation of the blood vessels. However, it must be emphasized that their use should be followed rather gingerly, testing out, as it were, the patient's tolerance. It is not well to prescribe oil of cade or oil of Russian birch in strengths greater than from 0.5 to 1 per cent. in the first prescription containing tar.

In cases of vesicular and moist or weeping eczema the skin is in an even more irritable and intolerant condition. Here only the blandest, most soothing and cooling applications may be used. The preparations first mentioned are not to be used. Alcohol would cause pain, and dusting powders in admixture with the serous exudate would form a thick, adherent crust. One must, therefore, select applications which are protective and which at the same time will permit the free evacuation of the products of inflammation. In this instance a moist or wet dressing has cooling qualities and at the some time aids in the maceration of the roofs of the vesicles. Impermeable substances, such as oil silk or gutta percha tissue should not be applied over these wet dressings. It is distinctly desirable, however, to change dressings frequently. Dressings saturated with any of a number of solutions meet the indications admirably. Lead water diluted with from five to eight parts of water, solution of aluminum subacetate diluted with nine parts of water, and an aqueous solution of ichthyol 1:100, have proved efficacious.

These solutions are best used cold and should be changed every ten or fifteen minutes. The gauze should not be folded in more than three or four thicknesses, so that evaporation can readily take place. In the event that aqueous solutions are poorly tolerated, a mild ointment, such as boric acid and benzoated lard, or a mixture of equal parts of lime water and olive oil may be tried.

Should there be only slight or no improvement from these aqueous solutions or mild ointments, it is advisable to resort to the use of ointments or pastes of greater consistency; for example, zinc oxid ointment or Lassar's paste, applying the ointment on linen or mull bandage and swathing the part. If, finally, even the thicker ointments and pastes do not bring results, it may be necessary to resort to energetic stimulation which causes a crust to form. The crust acts as a protective covering under which the repair process goes forward. Stimulating applications may be made by painting the part with a 5 per cent. silver nitrate solution, or with a 10 per cent. alcoholic solution of tar. After application the part is covered with starch powder. It is well again to emphasize that the medication which causes improvement should be continued, while that which aggravates the condition or which

Fig. 3.—Eczema squamosum et crustosum of the leg with thickening of the skin, accumulation of scales and crusts and relatively sharp demarcation of lower margin of patch.

brings about no improvement must be immediately stopped.

In more chronic cases of vesicular eczema when the acute inflammatory symptoms have disappeared and when oozing has stopped and the patches are covered with adherent crusts (eczema crustosum), a good local application is a dressing impregnated with an astrin-

gent paste or ointment. Diachylon ointment serves this purpose very well; the ointment is applied to linen and the bandages are changed once daily and the part cleansed with olive oil. Such dressings are continued until all evidence of the disease has disappeared.

ECZEMA SQUAMOSUM

The method just described is applicable to cases of squamous eczema without previous use of the foregoing methods of treatment, because it will cause maceration of the scaly covering of the patch and produce an astringent effect on the dilated vessels. It also serves as a valuable protective covering. The standard treatment for squamous eczema is the application of nonirritating ointments or pastes to which may be added some antipruritic, such as thymol, phenol, camphor or salicylic acid. Tar preparations are indicated when the area has become distinctly less inflammatory and has taken on a bluish red or livid appearance. When the patient is free from eczema he must observe certain precautions: He must use a minimum of water on the skin; he should use only nonirritating soaps, and following a bath he should anoint his body with a bland oil.

ECZEMA OF THE SCALP

Eczema of the scalp is considered a special type of the disease because the numerous sebaceous glands partake in the inflammatory reaction. Thick pastes or ointments are naturally not indicated and must not be used. Nightly applications of oil to the scalp with a protective dressing on the head are advised, the scalp to be washed with soap and warm water in the morning. In this way the crusts and other products of inflammation are removed. The removal of crusts is essential so that subsequent therapy may reach the affected integument. In cases of moist eczema of the scalp, applications saturated with solution of lead acetate or aluminum subacetate meet the indications. When the oozing or weeping has stopped it is well to apply oily suspensions or thin ointments containing tar, sulphur or both.

	Gm. or C.c.
Rectified oil of birch tar	1
Precipitated sulphur	2
Benzoated lard	
Petrolatum	aa 20

Label: Apply to scalp.

To remove the scales an alcoholic lotion may be used with a small admixture of kerosene or ether. In many cases of chronic eczema of the scalp a 5 per cent. white precipitate ointment is of great value.

ECZEMA OF THE NARES

This condition is frequently associated with pathology in the nasal cavities, for example, deflected septum, hypertrophied turbinates, or polypus, and is often present in cases of chronic rhinitis. In these cases it is well to have the cooperation of a rhinologist. The patient often develops rhagades, and frequently erysipelas may follow if this condition persists. These cases are best treated with tampons impregnated with a 5 per cent. white precipitate ointment or a 10 per cent. ichthyol ointment.

ECZEMA OF THE PALMS

Eczema of the palms and soles is given special consideration because of the marked thickness of the epidermis in these parts. The vesicular type is rarely seen here because the epidermis is so closely and intimately connected with the underlying structures. In these cases a marked thickening of the epidermis is noted. The first therapeutic indication is the removal of this horny accumulation, so that the underlying inflammatory process may be influenced by the medication ordered. This can be accomplished by energetic therapy which produces maceration, for which a suitable ointment applied to a mull bandage and brought into intimate apposition with the skin is very useful.

	Gm. or C.c.
Diachylon ointment	30
Oil of cade	6

Label: Apply on linen and bandage.

During and after this mode of treatment it is well to use a formaldehyd ointment, because of the marked hyperhidrosis which is frequently associated with this form of eczema.

	Gm. or C.c.
Solution of formaldehyd	5
Menthol	5
Wool fat	
Petrolatum	aa 25

Label: Formaldehyd ointment.

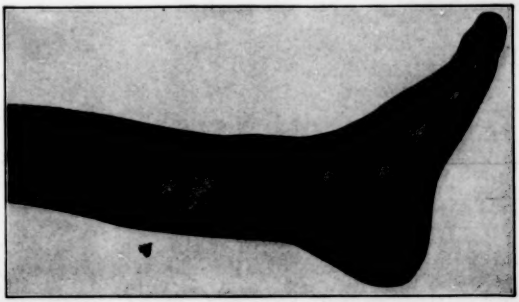

Fig. 4.—Chronic eczema of left leg associated with varicose veins, horny epidermis, scales and hard infiltrated papules at margin of lesion.

The frequent use of water is not permitted because it stimulates the growth of horny epidermis.

ECZEMA OF THE BREAST

In eczema of the breast it is well to examine the patient carefully for the presence of scabies. If scabies exists it should be energetically treated regardless of the intensity of the eczema. If the eczema is a result of nursing and the condition is not so severe as to necessitate weaning the child, great care must be exercised not to prescribe drugs which might be toxic to the infant. With these reservations, eczema of the breast is treated according to the foregoing rules and suggestions.

ECZEMA OF THE GENITAL AND ANAL REGIONS

It is not unusual to find eczema around the genital and anal regions, since hemorrhoids and constipation favor its presence. Cases of nervous pruritus ani are frequently sources of eczema, owing to the rubbing and scratching of the parts by the patient. Close attention to the regularity of the bowels, scrupulous cleanliness locally, and the use of ichthyol rectal suppositories are important aids in the treatment of the condition. In this location also, as long as there is weeping, applications of solution of aluminum subacetate are indicated, after which stage mild ointments may be used.

However, in many cases of eczema around the anal region, tar and other stimulating drugs may be used earlier than elsewhere.

The skin must be kept as dry as possible because any excess of moisture causes untoward maceration. In order to avoid this, ample dusting with starch powder and the application of a suspensory padded with absorbent cotton are valuable. To allay itching in the anal region, many drugs may be used in various types of application. However, one often has to experiment with the individual case to determine which drug to employ. The following may be used alone or in combination: tar, salicylic acid, betanaphthol, compound sulphur ointment (Wilkinson's ointment), solution of coal-tar, and ichthyol.

ECZEMA IN CHILDREN

In eczema of children one proceeds ordinarily in the routine manner. The children are not bathed, the skin is anointed with olive oil, and very mild ointments, such as zinc oxid ointment or zinc oxid ointment mixed with diachylon ointment, are applied to the skin. In order to prevent scratching, the hands of the child are tied. Later, as the condition improves, it is well to wash the skin with 40 per cent. alcohol.

In those locations where the skin surfaces lie in contact with one another, intertrigo often occurs in children as well as in adults. In order to care properly for these cases it is necessary to cleanse the skin carefully and to keep the surfaces apart by interposed padding. In fat children suffering from eczema intertrigo, one often sees dusting powders liberally used, frequently talcum powder, which forms into granules of variable size and often serves as an additional source of irritation. The principle of applying a bland powder is correct, but the result of using a dusting powder, especially talcum alone, is often unfortunate. Dusting powders may be used advantageously if applied on absorbent cotton rolls which are placed between the folds of the skin. By this method the cotton absorbs the moisture, and the powder does not form into rough, irregular, irritating granules. The cotton rolls must, of course, be changed frequently because they quickly become saturated. Here again in cases of marked or even moderate oozing the indication is for moist dressing of solution of aluminum acetate or subacetate, which should be applied cold and frequently changed.

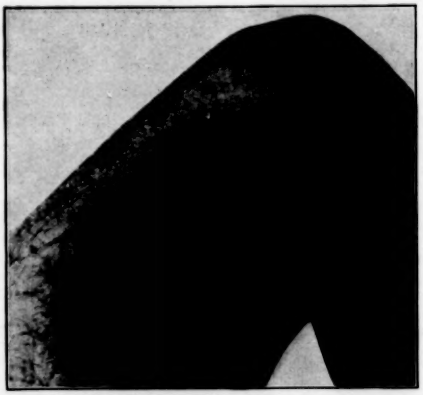

Fig. 5.—Chronic eczema with marked lichenification on inner aspect of thigh.

ECZEMA ASSOCIATED WITH ANEMIA

In cases of eczema associated with marked anemia, the treatment is similar to the same type of eczema in other persons, except that experience has shown that the admixture of cod liver oil in the ointments favors their tolerance. The general condition of the patient, usually a young person, must, of course, be taken into consideration. Iron, arsenic, cod liver oil or other remedies for anemia may be prescribed as indicated.

CHRONIC ECZEMA

Chronic eczema shows superficial inflammatory signs similar to those noted in the acute type. However, there is present in these cases a deep-seated infiltration of the corium resulting from the protracted course of the disease. Therapy is directed, therefore, first toward the symptoms as observed, and second, to overcome the infiltration in the corium and the thickening of the skin. So long as the latter is not accomplished, recurrences may be expected. The superficial inflammatory reaction is treated in the same manner as in acute or subacute cases, with moist dressings, ointments, pastes and other applications. It usually yields readily to treatment and leaves the skin somewhat discolored, scaly, and often cyanotic and thickened.

In these chronic cases we do not then apply ointments containing tar or ichthyol as has been described, but institute a definitely planned treatment which compresses the involved cutis, and produces maceration and subsequent exfoliation of the overlying layers. This is best carried out with bandages impregnated with diachylon ointment, which actually function as plasters, or, in less inflammatory cases, by the use of salicylic acid plaster. This treatment must be carried out often for a period of weeks, but eventually produces excellent results.

It is well in cases of marked thickening of the skin to apply a thin coating of the undiluted oil of cade with a camel's hair brush, and then bandage with diachylon ointment. If this intensive therapy is poorly tolerated, the parts may be bandaged with Lassar's paste after the application of oil of cade. Often such dressings may be left for several days, and need not be removed unless the patient complains of burning or pain. This method simplifies the treatment considerably. The latter part of the treatment of such a persistent chronic case is carried out by the application of tar ointments or pastes, but only after the intense thickening has been carefully eliminated by the previous use of bandages.

INTERNAL THERAPY OF ECZEMA

In an article of this character the internal treatment can only be outlined. As has been stated, the causative factors of internal origin, when discovered, must be eliminated as completely as possible.

The dietary management of a patient is one of the most important features in the treatment of many if not most cases of eczema. Some patients do not tolerate carbohydrates as well as others, and in these cases a reduction of carbohydrate intake almost to complete

elimination is a necessary procedure. In all cases it is well to examine the urine, noting any change from normal; sugar especially should be looked for. Some cases of carbohydrate intolerance, while showing no sugar in the urine, present quite constantly an increased amount of sugar in the blood.

Other patients are intolerant of sodium chlorid in large quantities, and questioning will often bring out the fact that these patients indulge overmuch in the use of ordinary table salt. Still other patients eat excessive quantities of nitrogenous articles of food, and a diminution in this element is of distinct advantage.

Especially in persons past middle life suffering from eczema, nephritic changes should be looked for, and if present, properly treated. Certain other patients with eczema present an anaphylactoid if not a true anaphylactic reaction against specific proteins or proteins of certain groups, among which may be mentioned egg albumin, pork, and the protein of cow's milk. It would lead too far ahead to enter on a discussion of the various proteins which, in susceptible persons, may cause an outbreak of eczema, but the careful clinician will bear these possibilities in mind and will inquire into the dietary habits of his patients. Often he will find that the patient himself may connect the ingestion of certain articles of diet with the appearance of the eruption. A patient recently under my care reacted in a marked way to the ingestion of walnuts. Besides the eczematous condition which followed he also presented marked edema of the nasal and conjunctival mucosae. It is well, therefore, to start a patient off with an absolutely bland diet, which is readily digestible and which contains little or none of the substances that experience has shown may be productive of eczema.

There are undoubtedly patients in whom the predisposition to eczema can in a greater or less degree be controlled by organotherapy. I have repeatedly seen patients materially aided by small doses of thyroid substance, and several neurotic and underdeveloped young women, I am sure were markedly benefited by the use of corpus luteum extract. However, the physiology and therapeutic uses of the ductless gland substances are in general so poorly understood that it is impossible to give clear-cut indications for their use, and the suggestion is offered merely as one that they may sometimes be helpful in the management of eczema.

25 East Washington Street.

Infant Mortality in War Zone.—A report on the subject of the sufferings of French and Belgian children under German domination in the occupied regions has been made to the French Academy of Medicine by Dr. Albert Calmette. It was found that out of 18,036 children who at the time of the armistice were attending the public or private schools of Lille, rather more than 8,000 had to be sent to hospital or convalescent colonies by the ministry of the invaded regions. This selection, made by specially qualified doctors, established that in all the scholastic groups at the end of the occupation the growth of 60 per cent. of the children had been definitely arrested, while about 40 per cent. showed clear signs of tuberculosis of the lymph glands. In a single school (Ecole Fombelle) inspected in March, 1919, of 210 children examined only one was normal; 163 suffered from deformity or other disease; 139 had swollen glands; forty-two had rickets, and six had pulmonary tuberculosis.—*Med. Officer*, Nov. 29, 1919.

Clinical Notes, Suggestions, and New Instruments

BLOOD TRANSFUSION APPARATUS

L. L. STANLEY, M.D., SAN QUENTIN, CALIF.

This blood transfusion apparatus was devised and has been successfully used at the California State Prison, at San Quentin, Calif. It is of the ball valve plan, and may be used with any capacity Luer syringe.

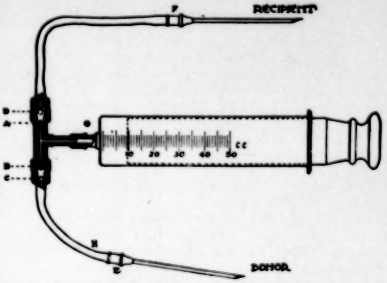

Fig. 1.—Details of blood transfusion apparatus.

When the plunger of the syringe is drawn out, the ball *A* (Fig. 1) engages in the socket, not permitting any fluid to pass it, while the ball *C* is displaced upward to position *B*, allowing the blood to come from the donor into the syringe. When the syringe piston is pushed in, the ball in the lower chamber engages the socket at *C*, preventing the fluid from returning to the donor. At the same time the ball *A* is released from its socket and assumes a position in the upper chamber at *D*, allowing the blood forced from the syringe to flow into the veins of the recipient.

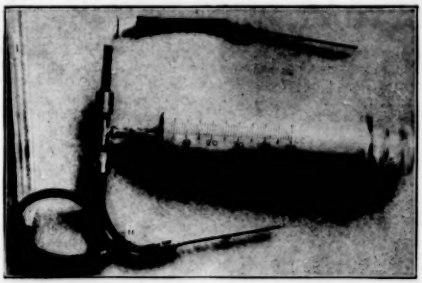

Fig. 2.—Blood transfusion apparatus and buret.

The donor and the recipient are placed on adjoining tables, with the arm of the recipient slightly higher than that of the donor, for the balls engage by gravity, and the valve must be held in a vertical position. The syringe is thoroughly sterilized, and the inside is coated with Ablemann's citrated ointment, which consists of:

	Gm. or C.c.
Adeps lanae	10
Aqua	10
Sodium citrate	10
Petrolatum q. s. ad	100

The valve connections and needles are boiled together.

With the syringe connected, enough physiologic sodium chlorid solution is drawn in to displace any air, and leave a

few cubic centimeters in the barrel. The cubital veins of both parties are located, and tourniquets applied. The needle is placed first into the vein of the donor, and when blood begins to flow, is connected to the apparatus at *E*. Similar procedure is done with the recipient, and when the connection is made at *F*, the operator may pump the blood.

The apparatus is so arranged that it may be taken apart and thoroughly cleaned. It is well to have two of these valves, one to quickly replace the other, in case the syringe should begin to work hard, or the blood begin to clot. The first valve is easily disconnected at *E*, *F* and *G*, and the second one substituted.

Should it be desirable to give citrate solution with the blood, a buret (*I*, Fig. 2), to which is attached a rubber tubing with a No. 28 hypodermic needle at the end, is provided. When the apparatus is connected up, the needle is plunged into the connecting tube at *H*. As the blood is drawn in from the donor, likewise the citrate solution is taken in from the container *I*. The percentage of the mixture is regulated by the size of the needles at *H* and *E*, and the strength of the citrate solution.

The advantages of the apparatus are:

1. The amount of blood transfused can be measured.
2. The blood is not exposed to the air.
3. The method is direct.
4. Only veins are used, and repeated transfusions from the same donor may be made.
5. Any amount can be transfused, and done very quickly.

In this prison, many injections of arsphenamin are given each week. When the patients are ready, sufficient solution is prepared for ten consecutive injections.

With this apparatus, using a 50 c.c. Luer syringe, one dose is drawn from the mixing vessel through the donor's tube, and injected into the patient, through the recipient's tube. This is more satisfactory than the gravity method, and saves considerable time.

UNIQUE FOREIGN BODY IN NOSE*

IRVING WILSON VOORHEES, M.S., M.D., NEW YORK

N. A. W., a colored man, aged 34, a native of the British West Indies, came to the West Side Dispensary, Jan. 17, 1920, with a history of yellow discharge from the right nostril during the previous two months. Examination revealed a large black mass in the right nasal fossa, very firm and hard, but freely movable in its bed. The septum was pushed over to the left, and the mass was bathed in yellow pus. It seemed reasonable to suppose that we had to do with a mass of necrotic bone, probably a sequestrum from the naso-antral wall following a tertiary lesion. Pledgets of cotton saturated with 10 per cent. cocain were introduced into the nose and left for ten minutes, at the end of which time our diagnostic acumen received a rude shock.

When 17 years of age, the patient tried to invent a gun. He took a piece of bicycle pipe about 1 foot long, into the open end of which he screwed a threaded bolt borrowed for the occasion from some part of a bedstead. He then bored a touch-hole in front of this breech plug. Into the muzzle he loaded a charge of gunpowder, rammed it down, followed this with a few BB shots, which were also rammed down, and then invited his cousin to apply a flame to the touch-hole while he held the apparatus in the position of aiming. The charge exploded and so did the piece of pipe. The breech plug blew backward and had never been seen or found, but small pieces of iron penetrated the left side of the nose in the region of the ethmoid. The scar from these fragments is still quite visible but insignificant. The boy was in bed for seventeen days, and was visited twice daily by a physician, who did not, however, locate the piece of iron. For seven months thereafter the boy experienced pain in his head and between the eyes about 10 o'clock each morning. Considerable discharge came from his nose. This was worse, he thinks, in summer. He came to the clinic chiefly because his friends chided him about a stench from his head, and because of "frequent colds."

After removal of the cocain pledgets, the black mass above mentioned was grasped with strong nasal grasping forceps, and much to our surprise a solid heavy object was gradually withdrawn from the nose, occasioning only slight discomfort in its passage. When washed off under the water tap, the improvised "breech plug" was identified as the missing iron bolt which seventeen years previously had been suddenly projected into the patient's nose.

The dimensions and weight of the bolt were: length 5.5 cm. (2⅛ inches); diameter, 1.5 cm. (½ inch); weight, a little over 1 ounce.

There is probably some latent sinus trouble, which we intend to look into as soon as roentgenograms can be made.

It seems hardly possible that any human being could carry such a foreign body in any part of his anatomy for seventeen years and not be conscious of its presence.

*Patient and specimen presented before the Nose and Throat Section, New York Academy of Medicine, Jan. 21, 1920.

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1919

EIGHTH ANNUAL REPORT

THE JOURNAL presents its eighth annual survey[1] of typhoid fever mortality in cities in the United States having more than 100,000 population. The cities included in the summary number sixty, and are the same as those reported on last year.[2]

It should be especially noted that the calculated typhoid rates for 1919 presented in this report are based on relatively unsatisfactory population estimates. It is now nine years since the 1910 census, and probably in a number of instances the population estimates are quite wide of the mark. The U. S. Census Bureau makes no estimate at all for the population of Denver, Memphis, Portland, Ore., Seattle and Spokane. Special methods of estimation have been used by the Census Bureau for the population of Cleveland and Washington.

The margin of error is probably not great in a few cities, such as Albany, N. Y., but in many others it will doubtless be shown by the 1920 census enumeration that calculated death rates for 1919 will have to be considerably revised. For these reasons, typhoid death rates can be subjected only to a broadly critical comparison this year.

The nine largest cities in the country (Group 1) show a very notable improvement in typhoid death rates as compared with 1918. For the first time, all the cities in this group have a rate below 10. In only one instance (Philadelphia) are the 1919 figures higher than those for the preceding year. Baltimore has the lowest typhoid rate in its history, and rises into the first rank (cities having a death rate of less than 10). The improvement in Baltimore is all the more noteworthy in that the recently annexed territory has had a much higher typhoid morbidity than the older portion of the city. It is stated that for the first

1. The preceding articles were published, May 31, 1913, p. 1702; May 9, 1914, p. 1473; April 17, 1915, p. 1322; April 22, 1916, p. 1305; March 17, 1917, p. 845; March 16, 1918, p. 777, and April 5, 1919, p. 997.

2. The number of typhoid deaths has been sent us by the local officer of health, and the rates have been calculated on the basis of population estimates made according to the method of the U. S. Census Bureau. It may perhaps be noted that the figures kindly furnished us by the municipal officials include the deaths of nonresidents as well as residents occurring within the city limits. In some instances this undoubtedly gives an exaggerated impression of the amount of typhoid fever in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of nonresidents would often result in an understatement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13).

six months of 1919 the morbidity rate in the annexed district was about five times as great as in the old city. It speaks well for efficient health administration in that city that, in the face of this disadvantage, the total typhoid mortality should show a decrease.

A particularly satisfactory improvement appears in Detroit, causing this city to rank well among other Northern cities for the first time in a number of years. The decline in Detroit's typhoid, which began about 1917, has now brought the death rate to the lowest point in the history of the city. Typhoid cases in Detroit are at present being studied very carefully. A relatively large proportion (about 45 per cent.) is attributed to outside infection. The proportion of contact cases seems to be low as compared with the figures for New York City, only twenty-four out of a total of 281 being attributed to this cause. Swimming and bathing in the polluted river water about the city is considered to be an important factor in the typhoid situation. Not a single case has been traced to milk during the three years 1917, 1918 and 1919.

Chicago, New York, Boston and Cleveland report typhoid rates that are astonishingly low. The improvement due to filtration of the Cleveland water supply is doubtless largely responsible for the lowering of the rate in that city. Chicago heads the list of cities in this group for the third consecutive year.

TABLE 1.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 1 (MORE THAN 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population				
	1919	1918	Average 1916-1919	Average 1911-1915	Average 1906-1910
Chicago	1.2	1.4	2.7	8.2	15.8
New York	2.0	3.7	3.4	8.0	13.5
Boston	2.2	2.5	2.8	8.0	16.0
Cleveland	2.4	4.7	4.9	10.0	15.7
Philadelphia	4.4	3.0	5.3	11.2	41.7
Detroit	5.3	10.0	12.0	18.1	21.1
St. Louis	5.8	7.2	7.5	12.1	14.7
Pittsburgh	6.2	9.8	8.9	15.9	45.0
Baltimore	8.9	12.2	13.6	23.7	35.1

As in previous years, the New York City Health Department has printed quarterly the results of its detailed study of each typhoid case. Increasing success seems to mark the work of the department in tracing sources of infection. For the last quarter of 1919 it is reported that the probable mode of infection was determined in 35.7 per cent. of the cases, as against 30 per cent. in the corresponding quarter of 1918. A relatively large proportion of the cases was traced to out of town infection. The majority of the cases traced to their source within the city were due to contact with active cases or chronic carriers. Water-borne and milk-borne typhoid infection seems to have almost disappeared from New York City.

It is doubtful whether there is today any other country in the world in which the nine largest cities could show so low an average typhoid rate as that reached in Group 1 in 1919.

The cities in Group 2 (from 300,000 to 500,000 population) show improvement almost without exception over the 1918 rates. Newark, N. J., and Cincinnati reach very low records, and Seattle maintains its admirably low rate of last year (2.3). The protection of the watershed of the Seattle water supply is receiving special attention from the local health authorities, since it is estimated that the watershed now has a population of from 500 to 600. All of these persons are required to submit themselves to typhoid immunization, and other methods of controlling conditions on the watershed are being energetically carried out.

Milwaukee continues to maintain its astonishingly low rate of the past few years. The purification of the water supply is still an issue in that city. Chlorination is now being practiced and, as the typhoid death rate shows, with eminent success; but it is generally considered that filtration will have to be resorted to eventually. Experiments to determine the applicability of various rapid filtration methods have been conducted during the past year.

TABLE 2.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 2 (FROM 300,000 TO 500,000 POPULATION

	Deaths from Typhoid per 100,000 Population				
	1919	1918	Average 1916-1919	Average 1911-1915	Average 1906-1910
Newark, N. J.	2.1	3.5	3.6	6.8	14.6
Seattle	2.3	2.3	3.1	5.7	25.2
Cincinnati	2.6	4.1	3.5	7.8	30.1
Minneapolis	3.1	7.6	5.6	10.6	32.1
San Francisco	3.3	4.6	4.0	13.6	27.3
Milwaukee	3.5	6.2	7.0	13.6	27.0
Washington	3.7	11.9	10.3	17.2	36.7
Los Angeles	4.7	2.8	3.9	10.7	19.0
Buffalo	7.0	7.8	8.9	15.4	22.8
New Orleans	13.7	20.1	20.0	20.9	35.6

New Orleans shows a substantial reduction in its typhoid rate for the first time in about ten years, and Washington records the remarkably low rate of 3.7, which brings it at once into cities of the first rank. The table (Table 2) shows the truly amazing improvement that has occurred in Washington in the past ten years. The typhoid death rate in this city in 1919 was almost exactly one-tenth the average rate for 1906-1910.

Group 3 (from 200,000 to 300,000 population) makes a much better record than in 1918, nearly every city showing a decrease in the typhoid rate. Denver and Columbus appear to have been exceptionally favored. Seven cities report rates under 5, as against four cities in 1918.

Rochester, N. Y., for some reason appears to have about doubled its rate of 1918, although the 1919 rate of 3.8 is by no means alarmingly high. Rumors were current in that city at one time during the summer that a break in the water main had led to the entrance of river water into the system; but this report seems to have been unconfirmed by the city health authorities. Louisville, Ky., makes a particularly good showing. It is stated, however, that a few cases of preventable typhoid have occurred in that city due to drinking contaminated spring water in a public park. Milk-borne typhoid was also a factor during the summer, but both city and state health departments acted with commendable promptitude, and the neglect of physicians to

TABLE 3.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 3 (FROM 200,000 TO 300,000 POPULATION)

	Deaths from Typhoid per 100,000 Population				
	1919	1918	Average 1916-1919	Average 1911-1915	Average 1906-1910
Jersey City	2.2	4.1	4.0	7.2	12.6
Columbus, Ohio	3.0	8.9	8.2	15.8	40.0
St. Paul	3.0	3.5	3.4	9.2	18.3
Denver	3.2	8.7	6.0	12.0	37.5
Providence, R. I.	3.4	4.5	4.6	10.2	14.3
Portland, Ore.	3.6	5.6	4.8	10.8	23.2
Rochester, N. Y.	3.8	1.9	3.4	9.6	12.8
Indianapolis	4.7	6.6	11.9	20.5	30.4
Louisville, Ky.	9.0	12.4	10.8	19.7	32.7
Kansas City, Mo.	11.2	13.7	11.3	16.2	35.0

report cases of typhoid in the family of a dairyman was summarily dealt with. The degree of improvement reached in Louisville with its large negro population may be appreciated by comparing the average of 1916-1919 (10.8) with the average for 1906-1910 (52.7). Indianapolis and Columbus, two Northern

TABLE 4.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 4 (FROM 125,000 TO 200,000 POPULATION)

	Deaths from Typhoid per 100,000 Population				
	1919	1918	Average 1916-1919	Average 1911-1915	Average 1906-1910
Spokane, Wash.	0.0	9.1	4.5	17.1	30.3
Scranton, Pa.	1.3	5.2	4.4	9.2	31.5
Worcester, Mass.	2.8	4.6	3.9	5.0	11.8
Fall River, Mass.	3.0	7.0	9.4	13.4	13.5
Toledo, Ohio	3.1	9.9	11.4	31.4	37.5
Oakland, Calif.	3.2	4.7	3.4	8.7	21.5
Richmond, Va.	3.7	7.5	10.5	15.7	34.0
Paterson, N. J.	4.2	2.1	4.7	9.1	19.3
Omaha	4.4	5.0	5.2	14.9	40.7
New Haven, Conn.	5.7	5.2	7.0	18.2	30.8
Syracuse, N. Y.	6.7	9.2	9.6	12.3	15.6
Atlanta, Ga.	9.6	14.4	14.6	31.4	58.4
Birmingham, Ala.	14.6	31.9	35.8	....	....
Memphis, Tenn.	58.4	15.9	32.6	42.5	35.3

cities which, for some years, lagged behind similarly situated communities, seem now to be permanently in the class with other cities having the same climatic and racial characteristics. Kansas City, however, shows relatively little diminution in its typhoid rate, and has, indeed, remained practically stationary for four or five years. The rate for 1919 appears to be slightly higher than that in 1916 and 1917. It seems a favorable time for an intensive investigation of the relatively high prevalence of typhoid fever in that city.

Group 4 (from 125,000 to 200,000 population) includes the city with the highest (Memphis) and that with the lowest (Spokane) 1919 death rate in the whole series of sixty cities included in this summary. Spokane reports that it has not had a single death from typhoid fever, a truly remarkable showing, but one that we may anticipate will be rivaled by other communities in the near future. Cambridge, Mass. (Group 5), reports only two deaths, and Hartford, Conn. (Group 5), only one. Spokane, however, seems to

TABLE 5.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 5 (FROM 100,000 TO 125,000 POPULATION)

	Deaths from Typhoid per 100,000 Population				
	1919	1918	Average 1916-1919	Average 1911-1915	Average 1906-1910
Hartford, Conn.	0.9	7.0	6.8	15.9	19.0
Tacoma, Wash.	1.6	5.7	3.3	10.4	....
New Bedford, Mass.	1.6	8.0	4.8	15.0	16.1
Cambridge, Mass.	1.7	2.7	2.4	4.0	9.8
Springfield, Mass.	2.6	3.6	4.3	17.6	....
Camden, N. J.	2.7	3.6	5.3	4.5	....
Lowell, Mass.	3.4	1.8	5.8	10.2	13.5
Bridgeport, Conn.	3.8	3.9	5.7	5.0	10.3
Dayton, Ohio	4.5	6.9	9.9	14.8	22.5
Grand Rapids, Mich.	5.1	10.3	10.8	25.5	29.7
Salt Lake City	5.4	7.1	10.2	13.2	....
Reading, Pa.	6.1	12.3	11.1	31.9	42.0
Trenton, N. J.	6.8	9.4	8.7	22.3	....
Albany, N. Y.	7.6	10.7	9.1	18.6	17.4
San Antonio, Tex.	9.6	54.3	26.6	29.5	....
Dallas, Tex.	12.2	12.6	17.9	....	....
Nashville, Tenn.	15.8	32.7	23.5	60.2	61.2

bear off the honor of being the first American city with more than 100,000 population to have no single death from typhoid fever within its borders during a calendar year.

At the other end of the scale, Memphis has temporarily descended into the depths. In March and April, 1919, Memphis suffered from an old fashioned waterborne epidemic of typhoid due to the serious contamintion of the city supply. This unfortunate occurrence has made the Memphis rate the highest among the sixty cities here considered. It is, in fact, the highest typhoid rate recorded in any one of these cities since 1911, when it was Memphis again that had the unenviable distinction of having the highest rate from typhoid fever of any large city in the United States. An encouraging feature of the situation in that city, however, is that, except for the water epidemic in the spring, typhoid seemed well under control, only four deaths being reported for the last four months of 1919.

Richmond, Va., makes a new low record of 3.7, a rate which is probably the lowest ever reached by any Southern city of more than 100,000 population. Not a single death occurred in that city during the first six months of last year. The rate is so low, in fact, that difficulty may well be experienced in living up to it during the next few years. We have had occasion to

TABLE 6.—DEATH RATES FROM TYPHOID IN 1919

Honor Roll (from 0.0 to 2.0)			
Spokane, Wash.	0.0	Tacoma, Wash.	1.6
Hartford, Conn.	0.9	New Bedford, Mass.	1.6
Chicago	1.2	Cambridge, Mass.	1.7
Scranton, Pa.	1.3	New York	2.0
First Rank (from 2.0 to 5.0)			
Newark, N. J.	2.1	San Francisco	3.2
Boston	2.2	Providence, R. I.	3.4
Jersey City	2.2	Lowell, Mass.	3.4
Seattle	2.3	Milwaukee	3.5
Cleveland	2.4	Portland, Ore.	3.6
Cincinnati	2.6	Richmond, Va.	3.7
Springfield, Mass.	2.6	Washington	3.7
Camden, N. J.	2.7	Bridgeport, Conn.	3.8
Worcester, Mass.	2.8	Rochester, N. Y.	3.9
Fall River, Mass.	3.0	Paterson, N. J.	4.2
St. Paul	3.0	Omaha	4.4
Columbus, Ohio	3.0	Philadelphia	4.4
Minneapolis	3.1	Dayton, Ohio	4.5
Toledo, Ohio	3.1	Los Angeles	4.7
Oakland, Calif.	3.2	Indianapolis	4.7
Denver	3.2		
Second Rank (from 5.0 to 10.0)			
Grand Rapids, Mich.	5.1	Trenton, N. J.	6.8
Detroit	5.3	Buffalo	7.0
Salt Lake City	5.4	Albany, N. Y.	7.6
New Haven, Conn.	5.7	Baltimore	8.9
St. Louis	5.8	Louisville, Ky.	9.0
Reading, Pa.	6.1	Atlanta, Ga.	9.6
Pittsburgh	6.2	San Antonio, Tex.	9.6
Syracuse, N. Y.	6.7		
Third Rank (from 10.0 to 20.0)			
Kansas City, Mo.	11.2	Birmingham, Ala.	14.6
Dallas, Tex.	12.2	Nashville, Tenn.	15.8
New Orleans	13.7		
Fourth Rank (over 20.0)			
Memphis	58.4		

comment previously on the admirable health administration in Richmond during the last decade, which has been one of the factors that has made such achievements possible. Two other Southern cities, Atlanta and Birmingham, have also established low typhoid rates which must be regarded as highly creditable in view of the climatic and racial conditions with which these cities have to contend. The Birmingham milk supply has very properly been the subject of special agitation. There is reason to believe that milk-borne infection and fly-borne infection are still relatively important typhoid factors in many Southern cities. It can be fairly predicted that with a good pasteurization ordinance the typhoid in Birmingham will be materially reduced as it has been in other cities where suitable measures for safeguarding milk supplies have been put in force.

Toledo, which in 1916 had a rate of about 23, now records the very low rate of 3.1. Fall River, Scranton, Oakland and Worcester are other cities in which the 1919 typhoid rate was very low.

Group 5 (from 100,000 to 125,000 population) comprises seventeen cities. In all but one of these the typhoid rate was lower in 1919 than in 1918, the exception showing only a trifling change. It is plain that in most of the cities in this group the number of deaths is now so small that a slight fluctuation in rate from year to year has little significance. Many cities now report only one, two, three or four deaths in a year, and not all of these are deaths of residents.

It is probable, as stated earlier in the summary, that population estimates for some cities are quite wide of the mark. This is, perhaps, particularly true of certain cities in this group. Such cities as Bridgeport and Dayton, for example, may find their typhoid rates somewhat reduced when the 1920 census figures become available for use in calculation; but in cities of this size having less than half a dozen typhoid deaths, slight rate changes are of comparatively little significance.

It is evident that the maintenance of a low typhoid rate is not to be taken as a matter of course without the exertion of constant vigilance by the local health authorities. The remarkably successful results reached in this group of cities are due to the unremitting efforts of health officers in safeguarding the public water and milk supplies, in applying proper methods of excreta disposal, and in tracking down typhoid carriers. It must be remembered, too, that many of these communities are surrounded by villages and country districts less scrupulous with regard to typhoid occurrence or less able to cope with it than themselves, so that probably a considerable proportion of city typhoid is due to infection contracted outside the municipal limits.

It is worth noting that the three Southern cities that had the highest typhoid rate in Group 5 in 1918 all show a reduction this year.

The continued lowering of typhoid death rates in American cities is one of the outstanding features of modern sanitary progress. The rate for the whole group of sixty cities containing approximately one fourth of the population of the country is now less than 5. In 1912, only one of these cities had a rate lower than 5. So late as 1916 there were only three cities with a rate of 2 or less. There are now eight. In 1912 there were only fifteen out of the fifty-one cities then on our list that had a rate less than 10. All but four of these cities had a lower rate than 10 in 1919. Other comparisons might be made, but the tables themselves are sufficiently striking.

The unusually large percentage of typhoid reduction shown in 1919 as compared with preceding years may very well be attributed in part to the immunization in the army camps of a large proportion of the particularly susceptible age group. It is plain, too, that the continued safeguarding of water and milk supplies has nearly everywhere reduced typhoid to so low a point that health authorities are enabled to devote more attention to the prevention of contact and carrier cases. Wherever it is possible to investigate promptly and thoroughly the circumstances surrounding the development of each individual case, further spread of the disease is likely to be materially diminished. The outlook is highly encouraging for the practical elimination of typhoid fever.

TABLE 7.—AVERAGE DEATHS FROM TYPHOID PER HUNDRED THOUSAND IN EACH GROUP, 1916, 1917, 1918 AND 1919

Group	Year	No. of Cities	Total Population	No. of Deaths	Av. Deaths per 100,000
1	1916	9	13,743,746	854	6.2
1	1917	9	14,027,263	774	5.5
1	1918	9	13,809,901	568	4.3
1	1919	9	15,019,516	463	3.1
2	1916	10	4,653,181	344	8.5
2	1917	10	4,150,089	329	7.9
2	1918	10	4,372,088	288	6.8
2	1919	10	4,511,181	204	4.5
3	1916	10	2,635,983	248	9.4
3	1917	10	2,701,029	173	6.4
3	1918	10	2,773,716	193	6.9
3	1919	10	2,829,092	134	4.7
4	1916	14	2,250,991	330	14.7
4	1917	14	2,310,372	307	13.3
4	1918	14	2,449,736	331	13.5
4	1919	14	3,564,880	210	8.2
5	1916	17	1,983,918	235	11.8
5	1917	17	2,031,313	229	11.3
5	1918	17	2,053,215	240	11.7
5	1919	17	2,103,710	115	5.5
Total....	1916	60	25,667,919	2,011	8.1
Total....	1917	60	25,220,056	1,812	7.2
Total....	1918	60	25,458,656	1,620	6.5
Total....	1919	60	27,028,359	1,126	4.2

TABLE 8.—TOTAL AVERAGE TYPHOID DEATH RATE (1910-1919)

	Total Population (57 Cities)* Estimated by U. S. Census Bureau Methods	Typhoid Deaths	Typhoid Death Rate per 100,000
1910	20,966,035	4,114	19.59
1911	21,545,014	3,391	15.74
1912	22,005,993	2,775	12.56
1913	22,647,972	2,892	12.77
1914	23,191,951	2,408	10.38
1915	23,740,930	2,068	8.71
1916	24,265,359	1,847	7.61
1917	24,740,068	1,647	6.65
1918	24,971,278	1,557	6.23
1919	25,526,186	987	3.87

* Three cities are omitted from this summary because data for the full period are not available.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BENZOCAINE (See New and Nonofficial Remedies, 1920, p. 33).

Anesthesin-Calco.—A brand of benzocaine complying with the N. N. R. standards.

Manufactured by the Calco Chemical Company, Bound Brook, N. J. No U. S. patent or trademark.

GONOCOCCUS VACCINE (See New and Nonofficial Remedies, 1920, p. 283).

The Gilliland Laboratories, Ambler, Pa.

Gonococcus Vaccine (Polyvalent).—A number of strains of *M. Gonorrhea Neisser* are used in the preparation of this vaccine; the killed bacteria are suspended in physiological solution of sodium chloride and preserved with 0.25 per cent. three cresols. Marketed in packages of four syringes containing respectively 250, 500, 1,000 and 2,000 million killed gonococci; also in packages of four 1 Cc. ampules containing respectively 250, 500, 1,000 and 2,000 million killed gonococci.

OVARY (See New and Nonofficial Remedies, 1920, p. 201).

Ovarian Residue-Hollister-Wilson.—The residue from the fresh ovaries of the hog after the ablation of the corpus luteum.

Actions and Uses.—Ovarian Residue is used for the same conditions as the entire ovarian substance but is claimed to have the advantage of being somewhat more stable in composition (see general article on Ovary, New and Nonofficial Remedies, 1920).

Dosage.—From 0.06 to 0.2 Gm. (1 to 3 grains).

Manufactured by the Hollister-Wilson Laboratories, Chicago. No U. S. patent or trademark.

Ovarian Residue-Hollister-Wilson is a grayish powder, having a peculiar odor. It is prepared from the entire fresh hog ovary by removal by hand of the corpus luteum. The residue is dried and powdered.

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SATURDAY, MARCH 6, 1920

AN INDEX OF THE BODY'S MUSCULATURE

The physiologic significance of creatinin, which regularly appears in the urine, is still shrouded in mystery. Its close chemical similarity to creatin, long ago discovered to be a characteristic component of the muscular tissues of the higher animals, has inevitably led to conjectures regarding a relationship between the two chemical compounds; but no tenable theory can be formulated at the present day. The demonstration that urinary creatinin may have a purely endogenous origin and be excreted in comparatively constant daily amounts by persons who do not ingest either creatin or creatinin gave an impetus to the search for its precursor.

The average amount of creatinin excreted daily during a creatin and creatinin free regimen, expressed as milligrams per kilogram of body weight, has been termed the creatinin coefficient.[1] This has been estimated at about 25 mg. for lean persons and 20 mg. for the corpulent, the difference indicating that muscular mass rather than body weight per se is a determining factor in the creatinin coefficient of the body.

Creatinin does not seem to be increased appreciably in the urine as the direct result of exercise; hence it is doubtful whether muscular contraction leads immediately to a transformation of muscle creatin or whether there is some other muscular genesis of the urinary end-product. Nevertheless, it has long been maintained that the creatinin coefficient may be an index of the functional capacity of the muscles, because of its apparent proportionality to the mass of active contractile tissues. In muscular atrophies, the creatinin excretion appears to be below normal.

There are times when body weight gives a distorted view of the functional efficiency of the organism. In such circumstances it would be helpful to have an index as to the degree of involvement of the master tissues of the body. By a suitable indication, the degree of deterioration or restoration might be more accurately evaluated through chemical analysis of metabolism than through physical measurements or clinical inspection. Bürger has reverted to the problem of the creatinin coefficient by new observations in Schittenhelm's clinic at Kiel.[2] Numerous determinations on patients there have confirmed the belief that a high coefficient corresponds as a rule with the presence of a vigorous musculature, lower figures being obtained when the muscular development is poor and activity weakened. The original figures recorded by the pioneer American investigators of this subject have been confirmed.

There is a practical value attached to the demonstration that the creatinin coefficient is an index of the extent of participation of musculature in the entire body mass under normal physiologic conditions. When "reduction treatments" are instituted on obese patients, it is not always easy to decide whether the consequent loss of weight is due to combustion of fat or to an undesired disintegration of other than adipose tissues. The determination of the creatinin coefficient may give a much desired clue. With properly conducted therapy to overcome obesity, the coefficient should increase. A calculation shows that on the basis of the conceptions here discussed, 1 gm. of urinary creatinin per day is correlated with about 23 kg. (50 pounds) of muscle tissue. From such statistics it is possible to estimate the approximate muscle content of the body. For the average normal person it should correspond to about 40 per cent. of the body weight. Deductions and applications of the tentative principles here presented are obvious.

1. Shaffer, P. A.: Am. J. Physiol. **28**: 1, 1908.

2. Bürger, M.: Beiträge zum Kreatininstoffwechsel, I, Die Bedeutung des Kreatininkoeffizienten für die quantitative Bewertung der Muskulatur als Körpergewichtskomponente, Ztschr. f. d. ges. exper. Med. **9**: 262 (Oct.) 1919.

DELEGATES TO THE UNITED STATES PHARMACOPEIAL CONVENTION

Attention was called in the General News department of THE JOURNAL last week to the meeting of the U. S. Pharmacopeial Convention to be held in Washington in May. The objects of this convention are set forth in its articles of incorporation:

> The particular objects and business of this association are the encouragement and promotion of the science and art of medicine and pharmacy by selecting by research and experiment and other proper methods and by *naming such materials as may be properly used as medicines and drugs* with formulas for their preparation [italics ours.—ED.]; by establishing one uniform standard and guide for the use of those engaged in the practice of medicine and pharmacy in the United States whereby the identity, strength and purity of all such medicines and drugs may be accurately determined, and for other like and similar purposes.

Of primary importance among the functions of the convention, then, are the naming of drugs which may properly be used as medicines; devising of formulas in accordance with which they are to be compounded, and establishing of standards by which their identity and purity may be proved. As this is a large task, requiring special knowledge, the convention properly delegates this work to a body of fifty experts called the "Committee of Revision of the U. S. Pharmacopeia."

Who are best qualified, first of all, *to name the drugs which may properly be used as medicines?* Obviously, physicians who use drugs in the treatment of disease, and pharmacologists who study the actions of drugs on the living organism. Pharmacists who devise the formulas for compounding drugs or for making preparations for administering such drugs, chemists who establish the standards by which their identity and purity may be determined, and manufacturers whose opinion must be influenced by commercial considerations, should by no means have the deciding vote in this matter.

At the time of the previous revision, a "Committee on Scope" was appointed, to which were referred all questions of additions to and deletions from the Pharmacopeia. The decisions of this committee were to be based on the "therapeutic usefulness" or the "pharmaceutic necessity" of the drugs considered. A majority of the committee consisted of physicians. After a vast amount of work, the Committee on Scope submitted its report, recommending the deletion of a large number of substances which were not considered to be "therapeutically useful" or "pharmaceutically necessary." However, the executive committee (only two members of which may be said to represent those practicing medicine) disregarded the recommendations of the Committee on Scope in many respects, and included or rejected whatever substances it pleased, even including some drugs which had not even been considered by the Committee on Scope. Naturally, the Pharmacopeia thus compiled is an expression of pharmacy and the drug trade rather than of medicine.

To avoid a repetition of these conditions in the next Pharmacopeia, it is essential that each medical organization entitled to representation at the coming meeting of the convention should elect three delegates and three alternates, so that full representation of medical science shall be guaranteed. Delegates should be selected who know what are the interests of scientific medicine in the Pharmacopeia—delegates who realize that physicians, more than any others, are vitally interested in the content of the Pharmacopeia—delegates whose practice and teaching reflect the modern trend to eliminate the unimportant and useless drugs from the Pharmacopeia. The delegates should feel their responsibility and attend and take part in all of the meetings of the convention in order to secure the necessary reforms. It would be desirable that the convention pass a resolution which would make the composition of the Committee on Scope subject to the will of the whole convention. Obviously it is desirable that pharmacologists and physicians should comprise at least the majority of the members of the Committee on Scope, and that the decisions of this committee should be final and not subject to revision by any other committee, general or special. Particularly, its action should not be revised by any committee on which manufacturing pharmacists predominate.

ORAL SEPSIS AND THE ELECTIVE LOCALIZATION OF BACTERIA

Six years have elapsed since Billings[1] published the extensive clinical observations made by himself and his co-workers to demonstrate the importance of septic foci, even when small, as sources of chronic infection conveyed by the blood stream. It was shown that these foci may harbor the same type of bacteria as are found in distant lesions, and that specific types tend to localize in definite organs or tissues. Rosenow,[2] in particular, has been most energetic in the attempt to demonstrate conclusively the elective localizing power of freshly isolated streptococci found in the focus or systemic lesions of a number of diseases, including appendicitis, ulcer of the stomach, chronic endocarditis, and rheumatic fever.

Inevitably the possible relationship between ill health and oral sepsis has come into prominence in connection with the recent studies on what has lately been termed focal infection. To many it has seemed of late as if tonsillectomy and extraction of the teeth were vying with each other in popularity as procedures for removing objectionable bacterial foci. Rosenow[3] has recently applied his methods to a study of the possible significance of dental sepsis. He reports that specific lesions have been produced with bacteria from the various types of dental focal infections, such as gingivitis, pyorrhea, infected pulps, apical abscesses, discharging sinuses, and granulomas. He believes that his newer findings warrant the conclusion that chronic foci of infection about the teeth are potentially or actually detrimental to the health of the persons who harbor them. According to him, the lesions which are more or less enclosed, and which drain only into the circulation, are probably the most dangerous, and that sooner or later, alone or in connection with predisposing factors, they will break down the resistance of the patient and produce disease. Pulpless teeth and blind abscesses are regarded as the most dangerous form of dental sepsis.

In view of the growing favor in which the extraction of teeth is being held, several precautions need to be emphasized. Teeth should never be sacrificed unless the indications for removal are clear. Rosenow avers that tonsillectomy as now so commonly practiced before the condition of the teeth has been corrected is illogical. The lymphatics of the mouth and jaws drain into the tonsils. Some infections of tonsils improve or even disappear following the extraction of infected teeth. The elimination of a visible focus does not

1. Billings, Frank: Focal Infection: Its Broader Application in the Etiology of General Disease, J. A. M. A. **62**: 899 (Sept. 12) 1914.

2. Rosenow, E. C.: Experimental Infectious Endocarditis, J. Infect. Dis. **11**: 210, 1912; The Etiology of Acute Rheumatism, Articular and Muscular, ibid. **14**: 61, 1914; The Etiology and Experimental Production of Erythema Nodosum, ibid. **16**: 367, 1915; Elective Localization of Streptococci, J. A. M. A. **65**: 1687 (Nov. 13) 1915. Rosenow, E. C.; Towne, E. B., and von Hess, C. L.: The Elective Localization of Streptococci from Epidemic Poliomyelitis, J. Infect. Dis. **22**: 313 (April) 1918.

3. Rosenow, E. C.: Studies on Elective Localization: Focal Infection with Special Reference to Oral Sepsis, J. Dental Res. **1**: 205 (Sept.) 1919.

necessarily mean the exclusion of all foci of infection. Vigilance must never be relaxed so long as the results are not all that is expected. When it is at length appreciated that the prevention and cure of dental foci is only one of many factors in the management of infection of obscure origin, the dangers of a one-sided therapeutic point of view will be averted, and a more sane hygiene is likely to ensue. However, the failure of the enthusiasm for oral hygiene to produce a cure-all need not blind us to the helpful contributions which a better knowledge and recognition of oral sepsis have brought to modern practice.[4]

TYPHOID A VANISHING DISEASE

THE JOURNAL'S annual summary of typhoid fever in the large cities of the United States,[5] which appears in this issue, is encouraging beyond expectation. Fifteen years ago, typhoid rates of more than 20 in these cities were very common, and rates of less than 10 correspondingly rare. The most sanguine sanitarian would hardly have anticipated the far reaching improvement that has actually occurred. At that time public health workers believed that any rate under 10 was highly satisfactory, and that a better average than this could hardly be expected for a generation. The author of an excellent work on typhoid, published in 1918, felt himself justified in stating at that time that "we have hitherto been extremely backward in applying recognized methods of sanitary prevention which have long prevailed in other lands." This criticism of American sanitary procedure would perhaps have been justified ten or fifteen years earlier, but long before 1918 the work of typhoid reduction was in full swing. Marked improvement began to occur about 1910, and from that time to this nearly every year has witnessed a fall in the typhoid death rate. The 1919 typhoid rate for a population of about 27,000,000 has reached the exceedingly low point of 4.2.

It should not escape notice that the 1919 rate shows a proportionately large diminution. The most plausible explanation would seem to be that given in our special article, namely, that the antityphoid inoculation of the young men in the military camps has proved a continuing safeguard for this age group, which would ordinarily have furnished a considerable number of typhoid victims. It seems to be evident that water supply and milk supply are hardly important factors at present in typhoid causation in our large American cities.

The great reduction in typhoid cases has everywhere the further advantage that it has now become possible for health authorities to investigate promptly and thoroughly each case of the disease as soon as it appears. It is thus becoming easier all the time to check incipient epidemics, to discover typhoid carriers, and to exercise better control over the surroundings of each typhoid case. The decrease in the number of typhoid carriers that will come inevitably with the lessening of the prevalence of the disease is sure in the long run to lighten the burden of health officers and to facilitate the task of eliminating typhoid fever. For it must now be recognized that the goal which we may set for ourselves is the practical extinction of typhoid fever in this country. When one city of more than 100,000 inhabitants is able to report not a single death from typhoid, and another city has only one death from this disease, while the city of Chicago, with a population of more than two and a half million, reports only thirty-one typhoid deaths, we are perhaps justified in hoping that the day will come when typhoid, already a medical curiosity in some localities, will become, like smallpox, practically a negligible factor in our mortality returns.

4. In this connection the reader is referred to the monograph by Duke, W. W.: Oral Sepsis in Its Relation to Systemic Disease, St. Louis, C. V. Mosby Company, 124 pp.

5. Typhoid in the Large Cities of the United States in 1919, special article, this issue, p. 672.

Current Comment

ACUTE RESPIRATORY INFECTION IN MONKEYS FROM INOCULATION OF INFLUENZA BACILLUS

As reported recently in THE JOURNAL, Blake and Cecil [1] obtained interesting results by the inoculation of monkeys with a strain of the influenza bacillus isolated from influenzal pneumonia in a man and subsequently raised in virulence by repeated passages through animals. When inoculated in the nose or nose and mouth there developed an acute, self-limited disease with prostration, fever, cough and sneezing, rhinitis and tracheobronchitis, and either leukopenia or no special change in the leukocytes. Purulent sinusitis and hemorrhagic pneumonia developed in some of the animals. On intratracheal injections of the same strain of influenza bacillus, there resulted a similar pneumonia and similar general symptoms. Blake and Cecil regard the disease thus produced as "identical with influenza in man in its course, symptomatology, complications and pathology," and they conclude that "it seems reasonable to infer that *B. influenzae* is the specific cause of influenza." While there is no doubt that the influenza bacillus can cause an infection in the respiratory tract in monkeys that somewhat resembles influenza, it does not seem to have been established that this organism is the cause of influenza. Blake and Cecil recently presented their findings before the New York Academy of Medicine; elsewhere [2] in this issue is a report of the meeting. In the discussion, exception was taken particularly to the claim that it had been demonstrated that the Pfeiffer bacillus was the cause of epidemic influenza. Dr. William H. Park pointed out that the Pfeiffer bacillus has been found in virtually every case of whooping cough, in 90 per cent. of measles cases, and also in a large

1. Blake, F. G., and Cecil, R. L.: The Production of an Acute Respiratory Disease in Monkeys by Inoculation with Bacillus Influenzæ, THE JOURNAL A. M. A., Jan. 17, 1920, p. 170.

2. Society Proceedings, this issue, p. 696.

percentage of cases of respiratory infections which had been examined. It was his belief that the experience of Cecil and Blake had been important in designating that lesions can be formed in monkeys by the Pfeiffer bacillus similar to those found in the pneumonias occurring in influenza. According to Dr. Zinsser, the work had made it seem somewhat more likely that the influenza bacillus is the etiologic factor; and yet he did not believe that final judgment can be given on this point. The evidence cited by Blake and Cecil does not seem wholly convincing for various other reasons: (1) Possibly the inoculation of monkeys with other bacteria associated with influenza than the influenza bacillus would produce practically the same symptoms and lesions as those described, and on this account extensive control experiments are needed before any conclusions of a definite value can be drawn from the results of these experiments with the influenza bacillus; (2) many bacteriologists would take exception to the statement that the influenza bacillus is associated constantly with early uncomplicated cases of influenza, and (3) pathologists would hesitate to accept the statement that the pulmonary lesions in the inoculated monkeys are identical with those of human influenza. At least the question will remain open until the results of much more detailed studies are available, studies not only of material from inoculations with influenza bacilli but also of material from inoculations with other bacteria associated with influenza. In other words, we must not lose sight of the facts that other bacteria found in influenza may give similar experimental results; that the constant presence of the influenza bacillus in influenza has not been demonstrated conclusively, and that it has not been shown that lesions unquestionably peculiar to influenza have been reproduced in monkeys inoculated with influenza bacilli. It may, however, be stated that virulent influenza bacilli may cause an acute infection of the respiratory tract when inoculated in monkeys.

SNAPPING HIP

It is not always grave and dangerous diseases that bring the patient to the physician; frequently symptoms that are trivial, so far as their effect on health is concerned, are responsible for the call, on account of the annoyance they produce. Such a minor ailment is the peculiar condition "snapping hip." The patient complains that flexion and extension of the hip, such as occurs during walking, produces a peculiar snapping sensation on the outer side of the joint which, at times, may be audible to by-standers even at distances of 20 or 30 feet. Mayer[1] has recently described four cases. In his cases the phenomenon was due to a line of thickened fascia lata catching behind the great trochanter. Flexion of the thigh stretches the fascia, which finally, like a taut bow string, is suddenly released and snaps back in front of the trochanter. Propping[2] calls attention to the fact that Perrin was the first to describe this phenomenon, before a meeting of the Société de Chirurgie de Paris in 1859, and at that time demonstrated its mechanism. In 1912 Ebner[3] collected the reports of twenty-eight cases, to which Propping has added two more. In one of Propping's cases he demonstrated that the cause was a habitual dislocation of the head of the femur. He believes that in many cases the snapping is wholly under the control of the patient, and that it has a hysterical basis. The patient can produce the snapping sensation and sound voluntarily, whenever he desires. Manon[4] has also described a case recently. He found that simple transverse section put an end to the disturbance. It has been known for some time that there is normally a line of thickening in the fascia lata which runs from the iliac crest downward just in the line of the posterior margin of the great trochanter — the tractus cristofemoralis. If this tract becomes abnormally thickened or if the trochanter becomes abnormally prominent, the "snapping hip" may be produced, although a third factor is also necessary, namely, relaxation of the gluteus maximus. Mayer shows that the phenomenon may sometimes be controlled by appropriate strapping, but that in other instances it is necessary to excise portions of the tractus cristofemoralis so as to avoid a reformation of this band.

1. Mayer, Leo: Surg., Gynec. & Obst. **29**: 425 (Nov.) 1919.
2. Propping, Karl: Deutsch. Ztschr. f. Chir. **148**: 251 (Feb.) 1919.
3. Ebner: Deutsch. Ztschr. f. Chir. **107**: 63, 1912.
4. Manon, M.: Snapping Hip Joint, Presse méd. **27**: 635 (Oct. 29) 1919.

BOILED VEGETABLES FOR DIABETICS

Von Noorden called attention to the fact that the boiling of vegetables removed some of the carbohydrates, and Allen applied this fact by using thrice boiled vegetables in the dietary of diabetics. Until recently, the degree of removal of carbohydrates from different vegetables under repeated boilings had not been extensively studied from the quantitative point of view. This gap in our knowledge has now been partly filled by the work of Cammidge,[5] who has analyzed seventeen of the commonly used vegetables after boiling once, twice and three times. He found that the number of boilings necessary to remove all carbohydrate varied with different vegetables. In the case of celery, rhubarb and spinach, two boilings sufficed to remove all carbohydrate. In the case of white turnips and carrots, three boilings were sufficient; but in the case of all the other vegetables tested there was still carbohydrate varying from 0.1 to 1 per cent. after three boilings. There appeared to be no direct relation between the amount of carbohydrate originally present and the number of boilings required to remove it. The serious drawback to the use of thrice boiled vegetables has proved to be the lack of palatability that results. It is difficult to serve in an appetizing form the resultant mass of vegetable material, and the removal of the carbohydrates is accompanied by almost complete removal of the original flavor. This can be remedied to some extent by mixing clear broths or similar flavoring substances with the vegetable purée. It was some time ago suggested by Ruth Wardall that repeated extraction of the vegetables at a temperature considerably below boiling might accomplish the same result as boiling, without interfering so seriously with

5. Cammidge, P. J.: Lancet **2**: 1192 (Dec. 27) 1919; abstr. J. A. M. A. **74**: 358 (Jan. 31) 1920.

the palatability of the vegetables. Cammidge also tested this method of extraction and found that just as satisfactory results could be obtained and that the vegetables were left in a much more palatable condition.

Association News

COMMITTEE ON SCIENTIFIC RESEARCH MAKES GRANTS

The Committee on Scientific Research of the American Medical Association has made these grants for scientific work:

PROF. G. CARL HUBER, University of Michigan, for study of nerve repair, $400.

PROF. H. M. EVANS, University of California, for study of the influence of endocrine glands on ovulation, $400.

PROF. E. R. LECOUNT, Rush Medical College, for study of extradural hemorrhage and of the hydrogen-ion content of the blood in experimental streptococcus infections, $200.

DR. E. E. ECKER, Western Reserve University, for a study of the specificness of antianaphylaxis, $200.

DR. HENRIETTA CALHOUN, Iowa State University, for a study of the effect of protein shock on diphtheria intoxication, $400.

THE NEW ORLEANS SESSION

Going to New Orleans by Boat

As previously announced, Dr. Ira J. Haynes, P. O. Box 24, Richmond, Va., is arranging for a party to go by boat from Baltimore to New Orleans. He desires to correspond with physicians who would like to join such a party. The tentative plans for the trip provide that the boat shall leave Baltimore, Friday, April 23, and arrive in New Orleans, April 27. It is proposed that those who desire to do so may use their staterooms during the stay in New Orleans, and obtain breakfast on board the boat. On the return trip, it is planned that the boat leave New Orleans, Friday night, April 30, and reach Baltimore, Wednesday, May 5. It is estimated that the expense for the trip will be about the same as for railroad fare and sleeper, plus hotel expenses for the time occupied by the trip.

It has also been announced that the *Comas*, one of the Morgan Line of steamships, will leave New York, April 21, and sail from New Orleans on the return trip on the morning of May 1. This boat carries seventy first-class passengers. There is space also for thirty second-class passengers. Requests for particulars should be addressed to Mr. A. J. Foston, General Agent of the Southern Pacific Lines, 165 Broadway, New York City.

An Entertainment Feature

The Local Committee on Arrangements announces a novel feature of the entertainment to be provided for visiting Fellows, their wives and guests. This will be a carnival ball to be staged at the President's reception. There will be presented a number of interesting and attractive tableaux. This entertainment is characteristic of New Orleans, and promises to be of great interest to those who will be fortunate enough to be in attendance.

Hotel Accommodations

The chairman of the Committee on Hotels, Dr. J. J. Wymer, 921 Canal Street, New Orleans, reports that arrangements have been completed to handle promptly all requests for reservation for lodgings which may be received from Fellows of the Association. In addition to the available accommodations in the hotels, the Hotel Committee has arranged to assign to visitors a large number of rooms in well appointed boarding houses as well as in private homes. It is urged that Fellows who desire to make such reservations shall communicate with Dr. Wymer as soon as possible. When two or more are traveling in company and are willing to occupy the same room, this should be stated.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

Nursing Course Postponed.—On account of the prevalence of influenza, the opening of the four months' course of public health nursing, notice of which appeared in THE JOURNAL of February 7, has been postponed from March 1 to April 1.

Colorado School of Tuberculosis.—During 1919, the Colorado School of Tuberculosis was organized at Colorado Springs, along the lines similar to the Trudeau School of Tuberculosis. Dr. Gerald B. Webb was elected president; Dr. Philip A. Loomis, managing director, and Dr. George Burton Gilbert, secretary. The next course will begin August 2, and will continue until September 10.

DISTRICT OF COLUMBIA

Legislation to Regulate Practice of Osteopathy.—A bill to "regulate the practice of osteopathy in the District of Columbia" has been introduced in the House by Congressman Johnson of Kentucky. At the present time there are no medical restrictions or limitations on the practice of osteopathy in the national capital and any one can engage in the work. The bill provides for the creation of a board of osteopathic examiners; that all osteopaths must be graduates from legally incorporated schools or colleges, with a four years' course of instruction; that osteopaths shall observe all laws and regulations of the District of Columbia relating to the control of contagious diseases, certifying of births and deaths; a penalty of fine and imprisonment is provided for failure to comply with the provisions of the bill. This same bill passed the House two years ago but failed of passage in the Senate.

GEORGIA

New Officers.—The Association of Railway Surgeons of Georgia was organized at Macon, January 28, and the following officers were elected: president, Dr. Allen R. Rozar, Macon; vice presidents, Drs. George R. Maner, Warrenton, Thomas J. McArthur, Cordele, and Thomas H. Hancock, Atlanta, and secretary-treasurer, Dr. Jarrett W. Palmer, Ailey. The next meeting of the association will be held in Atlanta in August.——Emanuel County Medical Association held its annual meeting at Swainsboro, January 21, and elected Dr. Rufus C. Franklin, Swainsboro, president; Dr. Andrew C. Johnson, Garfield, vice president, and Dr. Thomas E. Blackburn, Wesley, secretary-treasurer.

Personal.—The residence of Dr. William J. Little, Vineville, Macon, was damaged by fire to the extent of $4,000. ——Dr. John M. Sigman, Macon, has resigned as director of the United States Public Health Service Hospital at Atlanta and resumed practice in Macon.——Dr. Horace C. Robles, Albany, has been elected health officer of Dougherty County.——Dr. Henry R. Slack, La Grange, was elected president of the Georgia branch of the Johns Hopkins Alumni Association at its annual meeting in Atlanta, February 21. ——Dr. Walter E. Barber, Atlanta, has been reelected vice chairman of the Fulton County Board of Health.——Dr. William H. Myers, Savannah, has been appointed chairman of the Savannah health survey.——Dr. Willard E. Quillian, Atlanta, has been elected vice president of the Atlanta Board of Health.——Dr. James T. Ross, Macon, has been reelected chairman, Dr. J. H. Hurd, Rutland, vice chairman, and Dr. Herring Winship, Macon, secretary of the Bibb County Board of Health.

IDAHO

Barracks Made Into Hospital.—The government barracks at Boise have been converted into a military hospital which will accommodate 200 patients. This hospital will care for disabled service men and will in addition be utilized as a general hospital.

Society Organized.—Physicians of Shoshone County met at Wallace recently and organized the Shoshone County Medical Society, electing Dr. Francis Leo Quigley, Wallace,

temporary chairman; Dr. William C. Lindsay, Kellogg, temporary vice chairman, and Dr. Leonard E. Hanson, Wallace, temporary secretary.

ILLINOIS

Personal.—Dr. George W. Alverson, Sciota, is said to have been found guilty, February 28, of the murder of Lawrence Clugston at Bushnell, in July last, and to have been sentenced to imprisonment for life in the penitentiary.

Illinois State Medical Society Proposes Section for New State Constitution.—The Illinois State Medical Society, through a special committee headed by Dr. Charles E. Humiston, has proposed the following section for the new constitution of the state, now before the constitutional convention in Springfield:

Section. The health of the people is essential to the welfare and perpetuity of the state.

"The General Assembly may enact laws to preserve and safeguard the health of the people and to impose licenses upon those undertaking to treat or cure the sick or infirm or to preserve from sickness and infirmity, persons within the state.

"No power shall exist to impose, hereafter, any term or restrictions or give power to any person or persons to treat or undertake to treat any ailment, infirmity or disease of another for pay, reward or compensation, upon any different terms, limitations, qualifications or prerequisites from those granted or limited to every other person or persons, who may hereafter be licensed to undertake to treat or cure the sick or infirm, or to preserve from sickness and infirmity, persons within the state.

The proposition has been submitted to the committee on miscellaneous topics consisting of O'Brien, chairman, Cooley, Lohman, Michaelson, Meinert, Hill, Pincus, Brandon, Paddock, Johnson, W. A. and Hollenbeck. The bill was presented to the convention by delegate George F. Lohman. Physicians and others who are interested in this section may communicate directly with the members of the committee apprising them of their interest in its adoption.

Chicago

Surgeons Hold Clinical Meeting.—The Chicago Surgical Society held an all-day clinical meeting, March 5. Throughout the day there were clinics at St. Luke's Hospital and the dinner and scientific program were held at the University Club in the afternoon.

The Augustana Hospital Drive.—The seven day drive conducted by 1,000 workers to raise $700,000 for the erection and equipment of a new building for Augustana Hospital closed, February 26, with $153,266 in the hands of the campaign committee. The construction of the new building will go forward.

Home Nursing School.—The fourth class in the Free Municipal Training School for Home and Public Nursing will open, March 7, with a class of 650. The third class of 831 women was graduated, February 24, and received the diplomas after completing an eight weeks' course in the training school.——It is said that 862 graduates of this school attended 10,360 cases during the recent prevalence of influenza.

Personal.—Dr. Edwin O. Jordan, chairman of the department of hygiene and bacteriology in the University of Chicago, has been made a member of the International Health Board of the Rockefeller Foundation, but will remain with the university.——Dr. Georgiana M. Dvorak Theobald, the only woman physician to serve with the American Red Cross in Siberia as a surgeon of the Czecho-Slovak army, returned from Siberia, February 28.——Dr. Alice K. Hall has been appointed a medical intern in the Los Angeles County (California) Hospital.

Medical Staff Appointments.—The following appointments to the attending staff of Cook County Hospital in the department of medicine have been announced as the result of a competitive examination given Dec. 4, 1919, by the Cook County Civil Service Commission: Drs. Charles H. Spencer Williamson, Ernest E. Irons, Ellis Kirk Kerr, Joseph L. Miller, Arthur F. Byfield, Joseph A. Capps, Walter W. Hamburger, James G. Carr, Willard W. Dicker, Sidney Strauss, Don C. Sutton, Lee C. Gatewood, Frederick Tice, Ludwig M. Loeb, Karl K. Koessler, and Theodore Tieken.

INDIANA

Tuberculosis Association Meeting.—At the annual meeting of the Indiana Tuberculosis Association held at Indianapolis, February 3 and 4, Dr. Gardner C. Johnson, Evansville, was elected president; Dr. Alfred Henry, Indianapolis, vice president; Mrs. Ella B. Kahrer, Anderson, recording secretary, and Mr. James W. Lilly, Indianapolis, treasurer.

Leave of Absence to Dr. Hurty.—The state board of health has granted a leave of absence to Dr. J. N. Hurty, its secretary. He will spend his leave in Florida, and during his absence Dr. William F. King, Indianapolis, will be in charge of the office.

New Hospital for Muncie.—The city council of Muncie, after having refused to make an appropriation of $25,000, requested by the citizens who were seeking to buy the Home Hospital for $105,000 and convert it into a city hospital, has agreed to make a cash donation of $15,000 and to give an additional $10,000 whenever the board of governors desires to enlarge the institution. Home Hospital will continue as a public institution but with a city official represented on the board of governors.

Personal.—Dr. Herman W. MacDonald, New Castle, has been appointed local surgeon for the Big Four System succeeding Dr. Oliver J. Gronendyke.——Dr. Frederick J. Schulz, for thirteen years surgeon of the General Electric Company at Fort Wayne, has resigned.——Dr. Harry E. Sharrer, Hammond, has resigned as district surgeon of the New York Central Line.——Dr. Edgar C. Loehr, Noblesville, has been appointed health officer of Hamilton County succeeding Dr. Frank Hershey, deceased.——Dr. Harvey W. McKane, Indianapolis, has been appointed a director of the division of tuberculosis, one of the new divisions of the department of health created by the last state legislature.——Dr. Paul E. Bowers, superintendent of the Northern Indiana Hospital for the Insane, near Logansport, has resigned to accept the position of superintendent of a hospital in California.

IOWA

Hospital Notes.—The Samaritan Hospital, formerly the City Hospital, Des Moines, has recently been opened to the public and it can accommodate seventy-five patients.

Health Laboratory Finished.—The new bacteriologic laboratories of the Sioux City Health Department have been completed and are in charge of Mr. W. D. Hayes, city bacteriologist.

Personal.—Dr. John M. Knott, who has practiced medicine in Sioux City for over half a century, announces that he will retire from active practice this month and will move to Southern California.

MARYLAND

Increased Appropriation for Medical School.—The governor of Maryland has recommended to the legislature an appropriation of $42,500 per year for the next two years for the University of Maryland School of Medicine, which is an increase over the former appropriation of $25,000. The college has also received $1,000 from the City of Baltimore for its outdoor obstetric department.

Night Clinics at the Hebrew Hospital.—The board of directors of the Hebrew Hospital have opened a night clinic at the hospital which will be held every Tuesday and Thursday evening. There are a number of free day dispensaries connected with the hospitals in this city, but no night dispensaries for the treatment of general diseases in this city or in this part of the country. The visiting physicians of the hospitals will be in attendance at the clinics.

Personal.—Dr. Elmer V. McCollum, Ph.D., Baltimore, of Johns Hopkins University has been made a corresponding member of the Royal Academy of Medicine of Belgium——Col. Henry Page, commanding officer at U. S. A. General Hospital No. 2, Fort McHenry, who has been recuperating at Raleigh, N. C., from an attack of influenza, has returned to the post to make preparations for his transfer to Denver, Colo., where he will be in charge of General Hospital No. 21.——Dr. James H. Jarrett, Towson, nestor of the medical profession at Towson, where he has practiced since 1865, celebrated his eighty-eighth birthday last week at his home.——Dr. Ross McC. Chapman, first assistant physician and chief executive officer of St. Elizabeth's Hospital, Washington, has been appointed medical superintendent of the Sheppard and Enoch Pratt Hospital. Dr. Chapman, who will assume his new duties March 15, will succeed Dr. Edwin N. Brush, Towson, resigned after a service of nearly thirty years. In addition to his duties at St. Elizabeth's, Dr. Chapman holds the position of clinical associate in psychiatry and clinical neurology of the faculty of George Washington Universiy, Washington.

MISSOURI

Personal.—Drs. Andrew W. McAlester, Columbia, and Woodson Moss, Columbia, were elected honorary active members of the Boone County Medical Society on account of their long and distinguished service in the profession, and as an expression of the esteem in which they are held.

Electro-Therapeutic Clinic in Kansas City.—The week of May 24 has been selected for the second graduate course of lectures in electrotherapeutics by Dr. Burton B. Grove, Colorado Springs, Colo. The course will precede the annual meeting of the Western Electro-Therapeutic Society which is to be held at the Little Theater, Kansas City, May 27 to 28.

State Medical Association Meeting.—The annual meeting of Missouri State Medical Association will be held at the state house, at Jefferson City, April 6 to 8. The house of delegates and scientific assembly will hold sessions simultaneously on the first day. A bronze tablet in memory of the nine members of the association who died in service during the World War will be dedicated at this meeting.

St. Louis

Memorial to Dr. Steer.—The council of the St. Louis Medical Society has granted a request made by Dr. William T. Coughlin as chairman of the committee of Washington University Alumni Association to erect a memorial to the late Dr. Justin Steer in the hall of the St. Louis Medical Society building.

Dean Resigns.—Dr. G. Canby Robinson, dean of Washington University Medical School, has resigned to accept a position as dean and professor of medicine in Vanderbilt University, Nashville, Tenn. This is the first appointment to the faculty of Vanderbilt since the donation of $4,000,000 by the general education board to the university.

NEW YORK

Health Center at Hornell.—The common council of Hornell has set apart rooms in a city owned building to house a tuberculosis clinic, which has been in operation for several years, a child welfare station more recently established and a venereal clinic.

Trudeau School Quota Filled.—The Edward L. Trudeau Foundation for Research and Teaching in Tuberculosis of the Trudeau Sanatorium, Saranac Lake, announces that the Trudeau School of Tuberculosis, which will hold its sixth session, June 16 to July 27, has for six months had a capacity enrolment and will be unable to admit any more students.

Personal.—Dr. LeRoy W. Hubbard has resigned as a member of the health board of Mount Vernon and has been succeeded by Dr. John H. Tallman.——Dr. Malcolm F. Lent, Albany, formerly medical director of the Stony Wold Sanatorium, has been appointed supervisor of the division of tuberculosis of the New York State Department of Health.

Division of Industrial Welfare Advocated.—One of the most important works conducted by the public health council of the state department of health during the year 1919 was an investigation of the industrial welfare needs of the state. As a result of a general survey of industrial conditions throughout the state, the council and the health commissioner have recommended the establishment within the department of health of a division of industrial welfare. The council has during the year provided for a period of isolation for typhoid and paratyphoid fever patients; for the exclusion from schools of children suffering with epidemic influenza; for the regular attendance of a physician at all day nurseries in the state, and for the taking of smears in cases of ophthalmia neonatorum.

New York City

Harvey Society Lecture.—The seventh lecture of the Harvey Society series will be delivered at the New York Academy of Medicine, March 13, at 8:30 p. m., by Dr. Otto Folin, professor of physiologic chemistry in Harvard University, on "Blood Chemistry."

Personal.—Thomas J. Preston, Ph.D., dean of the New York Homeopathic Medical College, has resigned.——Col. Henry D. Thomason, M. C., U. S. Army, retired, has been appointed superintendent of the Flower Hospital.——Dr. Frederic L. Barnum, Brooklyn, a member of the Red Cross commission to Siberia, who was recently captured by the bolsheviki, has been released.

Campaign Against Violators of Harrison Law.—At a conference between representatives of the Internal Revenue Department, February 23, plans for a vigorous campaign against dealers, smugglers and physicians who violate the Harrison narcotic law were formulated. The narcotic squad has been greatly enlarged and the enforcement of the law placed under the direction of James S. Shevlin.

PENNSYLVANIA

Radium Manufacturer Dies.—Mr. Joseph M. Flannery, Pittsburgh, prominently associated with the Standard Chemical Company which is the pioneer industry in producing radium for use by American physicians from native ore, died recently.

Hospital Library Association Organized.—The St. Joseph Hospital, Pittsburgh, has organized a library association to be open to those who patronize the hospital as well as to the physicians of the city and vicinity. Dr. Richard J. Behan is president and Dr. Jacob Rockman, secretary of the association.

New Influenza Cases in Pennsylvania.—Until February 24, the health department figures showed 1,262 new cases of influenza and 383 of pneumonia, with 438 deaths in three days. The Philadelphia reports were: influenza, 193; pneumonia, 161, while Pittsburgh reported 42 of influenza and 53 of pneumonia.

Case Against Physician Non-Suited.—In the case of John W. Conrad against Dr. George N. Highley, Conshohocken, in which damages of $20,000 were claimed for alleged malpractice in the neglect of his wife during delivery, Judge Swartz granted a non-suit on the grounds that no negligence on the part of Dr. Highley has been proved.

Personal.—Dr. Hugh Hamilton, Harrisburg, is president, and Dr. Samuel P. Heilman, Lebanon, secretary of the Pennsylvania Federation of Historical Societies.——Dr. Joseph Scattergood, West Chester, has been appointed local surgeon of the Pennsylvania Railroad at West Chester, succeeding Dr. Percy C. Hoskins, deceased.——Dr. Charles T. Horn, Lehighton, is president of the newly organized Lehighton Board of Health.——Dr. Ira J. Hain has been made health officer for Reading.

Philadelphia

Personal.—William G. McAllister, superintendent of the bureau of hospitals in the health department, resigned, February 27, the resignation to take effect April 1. He was appointed provisionally to the new bureau a few weeks ago.

Prison Goods for Hospitals.—According to E. J. Lafferty, secretary of the prison labor board, authority to sell prison made goods to all institutions receiving state aid will be asked of the next legislature. An effort will be made to secure the passage of such a law for at present the sale of prison made goods is restricted to county institutions while the product cannot be sold in Philadelphia County. There are approximately 3,200 state wards in the penal institutions of the state at present. Of this number only 10 per cent. are employed. Under the new law all could be employed and made self supporting by manufacturing supplies used by hospitals such as beds, mattresses, sheets and blankets; and the adoption of such a law would make it possible for the Philadelphia Hospital and similar institutions throughout the state to buy largely from the prison labor board.

SOUTH CAROLINA

New Hospital.—A new Salvation Army home and hospital is to be erected at Greenville to cost $200,000.

Ambulance Given to Roper Hospital.—Having no further use for a motor ambulance, the Charleston Chapter of the American Red Cross has presented its Silver Thimble Fund ambulance to the Roper Hospital at Charleston.

Personal.—Dr. Allard Memminger has been appointed chairman of the board of health of Charleston. The other members are Drs. John Mercer Green, secretary, and Charles P. Aimar, Henry W. DeSaussure and Archibald J. Buist.——Dr. William T. Brockman has been elected mayor of Greer.

SOUTH DAKOTA

Personal.—Dr. George S. Adams, Yankton, has been appointed superintendent of the State Hospital for the Insane, succeeding Dr. Leonard C. Mead, deceased.

New Officers.—Huron Medical Society at its annual meeting elected Dr. Benjamin Thomas, Huron, president; Dr. John C. Shirley, Huron, vice president, and Dr. Lorenzo N. Grosvenor, Huron, secretary-treasurer.——Dr. Mathew J. Hammond, Watertown, has been elected president of the Watertown District Medical Society.

TENNESSEE

State Association Meeting.—The eighty-seventh annual meeting of the Tennessee State Medical Association will be held at Chattanooga, April 6 to 8, under the presidency of Dr. Andrew F. Richards, Sparta.

Chiropractors Enjoined.—Six chiropractors of Memphis were enjoined, January 28, from practicing, in a decision given by Judge Heikell in a case brought by representatives of the osteopathic and medical profession. An appeal was taken to the supreme court.

Personal.—Dr. John S. Freeman, Springfield, has been reelected for a term of four years as health officer for Robertson County.——Dr. Howard M. Francisco has been appointed assistant superintendent of the Central State Hospital, Nashville, and also chief of the neuropsychiatric clinic of Vanderbilt Medical School. He is holding two clinics a week at the medical college and one clinic a week at the Central State Hospital.——Dr. George A. Hatcher, formerly assistant physician at the Central State Hospital, Nashville, has entered private practice at Fayette.

TEXAS

Trachoma Survey.—Asst. Surg. Joseph L. Goodwin, U. S. P. H. S., who has been assigned to make a survey of trachoma in the state, has begun work in Jefferson County, where he will ascertain the prevalence of this disease among schoolchildren.

Unwarranted Liquor Prescriptions.—The criminal district attorney has notified sixteen physicians of Houston to appear before a board of five state officials to explain why hundreds of prescriptions for liquor have been written by them. One of the physicians cited to appear is said to have a record of 388 prescriptions written in December alone.

Course in Public Health Nursing.—With the opening of the winter term the University of Texas will inaugurate a course in public health nursing, consisting of three months' theoretical work to be given at the university in Austin and two months' field work in Houston. This course is similar in length and content to those given in Columbia, Yale, Northwestern, California, Syracuse, Missouri and other universities.

Influenza Closing Order Upheld.—Declaring that the board of health of San Antonio was clothed with power to maintain quarantine measures deemed necessary to protect the public health, and that the state sanitary code is not exclusive, the petition of the First Church of Christ, Scientist, of San Antonio asking for an injunction to restrain the city from closing the churches, theaters, and other public places on account of influenza, was denied by Judge Taylor, February 13.

New Officers.—The board of directors of the Texas Public Health Association, February 10, elected the following officers: president, Dr. Zachary T. Scott, Austin; vice presidents, Dr. Elva A. Wright, Houston, and James H. Allison, Fort Worth; secretary, J. E. Rawlings, Forth Worth, and treasurer, H. A. Rowe, Austin. Dr. Morris H. Boerner, Austin; Frank C. Gregg, Austin; Charles S. Venable, San Antonio; William C. Farmer, San Antonio, and John Potts, Fort Worth, were elected directors.——At a recent meeting held at Angleton, the Brazoria County Medical Association was reorganized with the following officers: president, Dr. Samuel B. Maxey, Angleton; vice president, Dr. Moses H. Eades, Sweeney, and secretary-treasurer, Dr. George G. Wyche, Angleton.——The Central District Medical Association at its annual meeting, January 15, elected Dr. Howard M. Lanham, Waco, president, and Dr. N. D. Buie, Marlin, secretary. Marlin was selected as the next place of meeting.——Johnson County Medical Society at its annual meeting held in Cleburne, elected: president, Dr. Walter R. Washburn; vice president, Dr. Cariolanus V. Ezell, and secretary-treasurer, Dr. William E. Lucey, all of Cleburne.

VIRGINIA

Graduate Course for Colored Physicians.—During the last week in January a graduate course in early diagnosis of tuberculosis was given at Piedmont Sanatorium, Bergeville, for the benefit of the colored physicians of the state.

New Officers.—Wise County Medical Society in Norton, January 20, elected the following officers: president, Dr. John A. Gilmer, Big Stone Gap; vice presidents, Drs. Charles C. Carr, Inman, David A. Dunkley, Tom's Creek, and Daniel M. Moore, Stonega, and secretary, Dr. Claude B. Bowyer, Stonega. It was unanimously voted that the physicians of Wise County increase their rates 75 per cent.

Personal.—Dr. Joseph E. Taylor has been appointed coroner of Danville succeeding Dr. Edward Howe Miller, resigned.——Dr. John Garnett Nelson, Richmond, was elected commander of the Richmond Chapter of the American Officers of the World War at its meeting for organization, January 30.——Dr. Stuart McGuire, Richmond, was elected president of the Richmond Chapter of the University of Virginia Alumni at its meeting, February 13.

CANADA

Influenza Epidemic Situation.—Influenza is declining in Toronto and other parts of Ontario, and in Montreal and Quebec the situation is said to be well in hand.

Personals.—Dr. James R. Cox who has been spending the last year in Ottawa is leaving for China about the middle of March. Dr. Cox has been a medical missionary in China for a number of years.——Dr. John G. Fitzgerald, Toronto, has been appointed professor of hygiene at the University of Toronto succeeding Dr. John A. Amyot, Toronto, who has been appointed deputy minister of health of the Federal Department of Health, Ottawa.——Dr. Charles K. Clarke, Toronto, dean of the medical faculty of the University of Toronto, has intimated that he will resign shortly.——Dr. Allan Kinghorn paid a visit to Toronto lately before sailing for England on his way to South Africa where he will resume work with the South African Company. Dr. Kinghorn was formerly at Saranac Lake.——Dr. Thomas Archibald Malloch, Montreal, is among the appointments to the Beit Memorial Fund for Medical Research.

GENERAL

Gifts to Medical Schools.—The general education board announces the following contributions for the advancement of medicine: Washington University, St. Louis, $150,000; Johns Hopkins University, $400,000, and Meharry Medical School, Nashville, Tenn., $150,000. The fund given to Johns Hopkins was for the establishment of a full-time teaching system, with complete facilities for a department of obstetrics.

Influenza Statistics.—The health index of the United States Bureau of Census, for the week ending February 14, shows a slight increase in the incidence of influenza and pneumonia in the forty large cities. There was an excess annual mortality of 1,306 per hundred thousand of population as compared to the corresponding week of the median year in the period 1910-1916. At the height of the epidemic of 1918, the excess annual mortality was 4,695 per hundred thousand.

Throat, Nose and Ear Men Meet.—The annual meeting of the middle section of the American Laryngological, Rhinological and Otological Society was held in Cincinnati, February 21, and the following officers were elected: chairman, Dr. Joseph C. Beck, Chicago; vice chairman, Dr. George M. Coates, Philadelphia; secretary, Dr. William B. Chamberlin, Cleveland, and executive committee, Drs. Francis P. Emerson, Boston, Greenfield Sluder, St. Louis, and Lee Wallace Dean, Iowa City.

Medical College Association Elects Officers.—At the annual meeting of the Association of American Medical Colleges held in Chicago, March 2 and 3, Dr. William Pepper, Philadelphia, was elected president; Dr. Thomas Hough, Charlottesville, Va., vice president, and Dr. Fred C. Zapffe, Chicago, was reelected secretary-treasurer. The new executive council consists of Drs. Irving S. Cutter, Omaha; Isadore Dyer, New Orleans; James Ewing, New York City; Charles R. Bardeen, Madison, Wis, and George Blumer, New Haven, Conn.

New Tri-State Officers.—The twenty-second annual meeting of the Tri-State Medical Society of the Carolinas and Virginia was held in Charlotte, February 18 and 19, under the presidency of Dr. Robert C. Bryan, Richmond, Va., and the following officers were elected: president, Dr. John P. Munroe, Charlotte; vice presidents, Dr. John A. Williams, Greensboro, N. C., William W. Fennell, Rock Hill, S. C., and Halstead S. Hedges, Charlottesville, Va., and secretary, Dr. James K. Hall, Richmond, succeeding Dr. Rolfe E. Hughes, Laurens, S. C., who had occupied the position for twelve years and declined reelection. Spartanburg, S. C., was selected as the meeting place for 1921.

Plans of Red Cross.—Dr. Livingston Farrand, chairman of the central committee of the American Red Cross, announces the following plans for the completion of war time obliga-

tions and carrying forward the peace time activities. A fund of $30,000,000 is appropriated for various uses at home and abroad. For obligations to soldiers, sailors and their families, relief demands incident to disaster ,and the establishment of a peace program in America, $13,750,000 is allotted; for general European relief, especially in Eastern Europe, an appropriation of $15,000,000 is made, and it is estimated that the work of the American Red Cross in Siberia will call for an appropriation of $1,250,000.

American Congress on Internal Medicine.—The fourth annual meeting of the American Congress on Internal Medicine was held in Chicago, February 23 to 28, under the presidency of Dr. Glentworth R. Butler, Brooklyn. The scientific program included clinics, lectures and laboratory demonstrations in the mornings; clinical talks and demonstrations in the afternoons, and on Wednesday evening a joint meeting of the congress and the Chicago Medical Society at which Dr. Alfred S. Warthin of the University of Michigan, Ann Arbor, delivered an illustrated address on the "Medical Aspects of Gassing in Warfare, with Particular Reference to Mustard Gas." On Thursday the members of the congress inspected the Chicago Municipal Tuberculosis Sanatorium. Baltimore was selected as the next place of meeting.

Physician as British Ambassador.—The medical profession will be interested in the appointment of Sir Auckland Geddes as British ambassador to the United States which marks another chapter in the public career of a physician. Our London correspondent commented on the singular fact that two qualified physicians held the rank of cabinet minister in the British government—Sir Auckland Geddes and Rt. Hon. Christopher Addison, first minister of health. Sir Auckland Geddes, who was born in Scotland in 1879, was a pupil of Sir William Turner at Edinburgh, where he graduated M.D. in 1903, and later served as demonstrator and assistant professor of anatomy. From Edinburgh he was called to the chair of anatomy at the Royal College of Surgeons of Ireland, and during this period he made many contributions to the literature of anatomy and embryology, with here and there a note on the mechanical and structural factors of pathologic process. In 1913, Dr. Geddes was appointed professor of anatomy at McGill University. At the outbreak of the European war, he obtained leave from McGill University to enter military service. In 1916 he was appointed director of recruiting and when in August, 1917, recruiting was placed under civilian control, Sir Auckland became minister of national service. His election to parliament from Hampshire and his appointment to the ministry of reconstruction followed. In addition he assumed for a time the duties of president of the Local Government Board, in which position he was instrumental in the passage of the act creating the ministry of health. In April, 1919, he was appointed principal of McGill University and it was expected that he would assume the duties of the position in the fall, but this was prevented by his subsequent appointment as president of the board of trade and now as ambassador to the United States. His active interest in medical education is evidenced by his critical remarks on the record of the medical profession of England during the war, as reported in THE JOURNAL, Jan. 3, 1920, p. 43.

SIR AUCKLAND GEDDES, M.D.

Annual Congress on Medical Education and Licensure.—The Annual Congress on Medical Education and Licensure under the auspices of the Council on Medical Education of the American Medical Association, the Association of American Medical Colleges and the Federation of State Medical Boards of the United States, was held this week at the Congress Hotel, Chicago. The sessions lasted three days. There were about 250 delegates present. This has been the most satisfactory conference held on medical education for several years. Instead of three disjointed programs as heretofore held by the three organizations above named, this year a joint session was arranged, by which duplications were avoided, the program as a whole was better arranged and more ample time given for discussion. It appears also that the speakers were invariably men of ability and competent to speak with authority on the subjects with which they dealt.

Besides the usual reports of progress by the officers of the Council on Medical Education and the presidents of the other organizations, papers were presented; there was a symposium on "The Needs and Future of Medical Education," by Dr. George E. Vincent, president of the Rockefeller Foundation, New York City; Dr. Ray Lyman Wilbur, president of Leland Stanford University, California; Dr. Charles F. Thwing, president of the Western Reserve University, Cleveland; Mr. Abraham Flexner, secretary of the General Education Board, New York City. This was followed by a paper on "The Larger Function of State University Medical Schools," by Dr. Walter A. Jessup, president of the State University of Iowa, Iowa City. Two papers on "Research in Medical Schools" was given by Dr. Oskar Klotz, professor of pathology, University of Pittsburgh School of Medicine, Pittsburgh, and Dr. G. Canby Robinson, dean, Washington University School of Medicine, St. Louis. A great deal of discussion was given to the subject of "Full-Time Clinical Professors" following the remarks by the chairman of the Council on Medical Education and the paper by Dr. William Darrach, dean of Columbia University College of Physicians and Surgeons, New York City.

The subject of medical licensure was presented in the address on "Coordination of Effort in Medical Licensure," by Dr. David A. Strickler, president of the Federation of State Medical Boards, Denver, and in a paper on "Interstate Relations in Medical Licensure," by Mr. Francis W. Shepardson, director of the Department of Registration and Education of the State of Illinois. "Graduate Medical Education in the United States and Europe" was presented in articles by Dr. Louis B. Wilson, director of the Mayo Foundation for Medical Research, Rochester, Minn., and Dr. Walter L. Bierring, secretary of the Federation of State Medical Boards, Des Moines, Iowa.

Following were a series of reports on the teaching of the various premedical sciences by members of the Committee on Medical Pedagogy of the Association of American Medical Colleges. Among those presenting reports were: "Anatomy," Dr. Charles R. Bardeen, dean, University of Wisconsin Medical School, Madison; "Histology and Embryology," Dr. F. C. Waite, professor of histology and embryology, Western Reserve University School of Medicine, Cleveland; "Neuro-Anatomy," Mr. Irving Hardesty, professor of anatomy, Tulane University School of Medicine, New Orleans; "Physiology," Dr. E. P. Lyon, dean, University of Minnesota Medical School, Minneapolis; "Biological Chemistry," Dr. Otto Folin, professor of biological chemistry, Medical School of Harvard University, Boston; "Pharmacology," Dr. C. W. Edmunds, assistant dean, University of Michigan Medical School, Ann Arbor; "Pathology," Dr. James Ewing, professor of pathology, Cornell University Medical School, New York City; "Bacteriology and Parasitology," Dr. A. I. Kendall, dean, Northwestern University Medical School, Chicago, and "Public Health and Preventive Medicine," Dr. Victor C. Vaughan, dean, University of Michigan Medical School, Ann Arbor.

It had been frequently stated that a difficulty in previous conferences was the failure to provide ample time for discussion. The present conference, therefore, was all the more successful owing to the fact that there appeared to be no difficulty in this respect.

A more complete report, including abstracts of the various papers and discussions, will appear beginning in the next issue of THE JOURNAL.

FOREIGN

Cancer in Workers on Coal Briquettes.—The authorities in Germany are now collecting data in regard to cancer in persons engaged in making coal briquettes. In the last five years there have been ten cases of epithelioma recorded in a total of 2,500 workers. It was on the face or arm in five

cases and the scrotum in five others. Conjunctivitis is also common among these workers.

Appointments.—The president of the Royal College of Physicians, London, has appointed Francis W. Andrew, Harveian orator, and Dr. Reginald C. B. Wall, London, Bradshaw lecturer for 1920.——The council has appointed Dr. Martin W. Flack, London, Milroy lecturer for 1921, and has awarded the Oliver-Sharpey prize for 1920 to Prof. Emil Roux of the Pasteur Institute, Paris.

Memorial to Revilliod.—A bronze medallion with the bust of the late Professor Revilliod in bas relief is to be installed in the amphitheater of the medical department of the University of Geneva, Switzerland, the scene of his labors. The memorial is to be presented by his former pupils and friends, and subscriptions of 30 francs or more entitle the donor to a replica in bronze of the medallion. Address Dr. Maillart, 6 rue de la Synagogue, Geneva.

Diffraction Phenomena in Blood Cells.—The *Nederlandsch Tijdschrift* relates that Dr. A. Pijper of Bethal, Transvaal, in the midst of the difficulties of practicing medicine in Africa, has undertaken research which has demonstrated certain diffraction phenomena in blood cells and in cocci, which may serve for micrometric purposes. The South African Institute for Medical Research has awarded him 100 guineas as a token of appreciation.

Deaths in the Profession Abroad.—Dr. **M. Candela Plá,** a pioneer in the introduction of operative gynecology and radium treatment into Spain, professor of obstetrics and gynecology at the University of Valencia, aged 73.——Dr. **C. Bozzolo,** senator and professor emeritus of clinical medicine at the University of Turin, one of the first to study the spread of cancer by the lymphatics, and author of numerous works on pneumonia, meningitis and ankylostomiasis, aged 75.——Dr. **L. Barajas,** one of the best known specialists in ear and throat work at Madrid.

Data on Anesthetics.—Prof. W. Denk of Vienna appeals to the members of the profession for data on untoward by-effects or after-effects of all kinds from local anesthesia and nerve blocking, including intraspinal anesthesia. He is compiling records for an address on the subject to be delivered at Vienna in June, 1920, and he states that he would be very grateful for any information to aid him in the task. He inquires particularly for the reasons if any have abandoned the use of any of these methods for anesthesia. He is first assistant at the Klinik Eiselsberg, Alserstrasse 4, Vienna, Austria.

Reappearance of the Liége Médical.—After five years' suspension, the *Liége Médical* makes its appearance anew as the organ and mouthpiece of the profession in the Liége district, as in the seven years before the war. The editorial staff is all local, and includes many well known names, Nolf, Stassen, Malvoz, Fraipont, Beco, Henrijean, Delrez, Fredericq, Weekers and Stockvis, all members of the medical faculty of the university. The first issue tells of the presentation of a souvenir album to Dr. Herman, president of the Féderation Médicale Belge, in token of appreciation of his "superhuman efforts in medical care for 600,000 families during the war."

LATIN AMERICA

Epidemic Poliomyelitis in Argentina.—The *Brazil-Medico* states that Dr. Kraus, director of the public health service of Argentina, has gone to Santa Fé to investigate some cases said to be infant paralysis.

Deaths in the Profession. — At Rio de Janeiro, Dr. **H. Cesidio Samico,** aged 74, and Dr. **J. Saturnino de Brito** of the public health service.—— Dr. **E. G. Figueroa,** a well known stomach specialist of Buenos Aires.——Dr. **F. de la Vega,** for many years connected with Hospital Rivadavia at Buenos Aires, was killed, December 30, by a bandit.

Quarantining Against Influenza at Rio. — Several ships arriving at Rio de Janeiro from Europe with influenza on board and several deaths from alleged influenza during the passage, have been quarantined and the passengers held, by order of the director-general of the public health service, Dr. C. Chagas, pursuing the policy inaugurated by his predecessor and demanded by the public press.

Influenza in Mexico.—Influenza continues to spread in Mexico. In Mexico City there were 106 deaths, February 24; 100, February 25, and 86, February 26. All churches, moving picture houses and schools have been closed. It is stated that there are 3,000 persons sick with the disease at Tampico, the disease having taken a virulent form of late. Numerous cases are also reported from the state of Sonora and the city of Puebla.

Personal.—Dr. Louis Shapiro of the Rockefeller Institute is now in Colombia at the request of the Colombian government, making a study of the prevalence of leprosy, malaria and hookworm disease, in order to submit a plan for its eradication.——Dr. Victor G. Heiser of the Rockefeller Foundation has just returned to New York after a trip to Porto Rico with Dr. Grant to make a study of sanitary conditions of the island, especially as regards hookworm disease. Since the appearance of the hookworm infection in Porto Rico, the government of the island has spent several hundreds of thousands of dollars to combat the disease.

Government Services

MEDICAL OFFICERS, UNITED STATES NAVY, RELIEVED FROM ACTIVE DUTY

ILLINOIS
Chicago—Glaubits, B. J.

MARYLAND
Grayton—Speake, T. C.

MISSOURI
Kansas City—Ridge, F. I.

NEBRASKA
Genoa—Davis, K. S.

NEW YORK
New York—Goodchild, F. M.
Victor—Aldridge, A. H.

PENNSYLVANIA
Emsworth—Plumer, J. S.
Philadelphia—Saska, A.

SOUTH CAROLINA
Charleston—Layimer, J. B.

Health Conditions in the Army

For the week ending February 20, there was continued improvement in the health of the troops, although influenza and pneumonia cases still appear. The number of new cases reported showed a marked decline. There was an increase in the number of new cases of measles. The admission and noneffective rates also declined, the death rate being slightly more than half the rate for the preceding week. Among the American forces in Germany, influenza and pneumonia remained practically the same, while measles showed a decline. Among the American forces in Siberia, twelve new cases of pneumonia were reported as against two for the previous week.

Army Reorganization Bill

The Army Reorganization Bill has been reported from the House Committee on Military Affairs by Congressman Kahn of California, chairman. Under its provisions, there will be 1,820 officers of the medical department. Medical officers who served in the Army during the World War and are now in the Medical Reserve Corps will be eligible for appointment in the regular Army on July 1, 1920, under the terms of this bill. Approximately 700 such vacancies will have to be filled, and the selections will be made from medical men who served in the war and who are now in private life, or from medical officers who are now holding temporary commissions effective until May 1, 1920, only.

The bill provides that a colonel in the Medical Corps shall be not less than 48 years of age; lieutenant-colonel, 45; major, 36; and that no person shall be appointed to a grade higher than that held by him on Nov. 11, 1918—the date of the armistice.

The selection of these medical officers will be made by a board consisting of the general of the Army, three bureau chiefs and three general officers of the line.

It is intended to use the material developed and trained during the war in filling vacancies and the high age limit of 54 years is set in order to obtain the services of men of advanced years and high abilities for some of the technical staff positions.

The bill provides for commissioned rank to members of the Army Nurse Corps. As a result of a caucus of House members, the bill contains no provision whatever regarding a policy for universal military training. There apparently is no prospect whatever that this policy will be established by the present Congress. Its future enactment into law will depend on some program to establish it in schools and colleges and in that way educate the people to its merits. The bill as reported by Congressman Kahn will be the basis of all Army legislation which must be enacted by July 1, because the present law applying to Army personnel is effective only to that date.

Foreign Correspondence

MEXICO CITY

Feb. 22, 1920.

Dr. Noguchi in Mexico

Next to the death of Dr. D. Eduardo Licéaga, already mentioned in THE JOURNAL, the event that has attracted most attention among the medical profession in this city has been the visit of Dr. Hideyo Noguchi. He arrived from Yucatán, February 3, and remained here until the 8th, when he returned to New York. Accompanied by Israel J. Kligler, Ph.D., a member of the Rockefeller Institute for Medical Research, he attended the first session of the National Academy of Medicine, of which he is an honorary member. Two days afterward, by special invitation of the board of trustees of the Mexican Medical Association, he gave a brilliant lecture relative to his scientific work on the etiology of yellow fever, carried out in Ecuador and more recently in the city of Mérida. The lecture was illustrated with slides and was given in Spanish, in which the New York bacteriologist can make himself understood. He said that his mission in this country was not a personal undertaking, but that he had been sent by the Rockefeller Institute to try to confirm in Mexico the discovery he had made in South America of *Leptospira ictteroides*. He added that, using the well-known technic, he had been able to demonstrate the presence of this germ in four cases of fever he had observed at Mérida, and that he had delivered several specimens of the micro-organism to the superior board of health. He showed several live cultures of *Leptospira* in the dark field and in various stains, as well as the vaccine prepared from these germs, which, it is hoped, may serve to immunize against yellow fever, as similar products have done in other diseases. He also showed the specific serum which possesses curative properties, and the preserved bodies of guinea-pigs that had died of experimental yellow fever, in which could be seen lesions very similar to those produced by the disease in man. He ended by saying that in his work he had been assisted by Kligler and several Mérida physicians. Noguchi was very much applauded by his audience, which included several hundred physicians and many medical students. It can be said that while this lecture did not add to our knowledge of the bacteriology of yellow fever, it strengthened the belief in the causal rôle of *Leptospira*, through its having been isolated in the cases studied recently. Noguchi also demonstrated before several Mexican physicians in one of the departments of the board of health his modification of the Wassermann reaction. While in the city, Noguchi was lavishly entertained both by officials and by private citizens. The impression left by the visit of the Rockefeller representatives could not have been better, and we hope that more American scientists of the same category may come to this country to help us in our struggle for the improvement of health conditions and to cement the bonds that unite the members of the medical profession in the two countries.

The Influenza Situation

Against our hopes based on the long intervals that usually separate the epidemics of influenza, this disease has reappeared. As in previous instances, the epidemic has extended from north to south, after having presented itself in the United States. Owing perhaps to the fact that we are having very mild weather, or for some other reason, the number of those attacked is smaller than in the United States. The disease so far has been mild, the simple catarrhal form exceeding the hemorrhagic cases. The cases of influenzal pneumonia, pleuritis, and bronchopneumonia are also less numerous and there have been no nervous sequelae. There are no official statistics on which to base my opinion, but the general impression is that the mortality has not increased as in 1918; that the persons who contracted the disease in the preceding epidemic have not been attacked this time, and the largest morbidity has been among children.

Personal

Dr. G. Mendizábal, president of the Mexican Medical Association, has been made by the king of Spain commander of the Real Orden de Isabel la Católica.——Dr. José León Martínez, former professor of clinical medicine in the School of Medicine, has been appointed director of the Military Hospital of this city, and of the Military Medical School attached to it, receiving the rank of colonel.——Dr. Germán Diaz Lombardo, vice president of the Academy of Medicine, has returned from his trip to the United States, where, for the purpose of study, he visited the cities of Chicago and New York.——Dr. Agustin Chacón, an ophthalmologist, member of the academy and former professor of the School of Medicine, has died as a result of a gastrorrhagia.

PARIS

Jan. 29 1920.

The Creation of the Office of Minister of Hygiene

Prime Minister Clemenceau having resigned, M. Millerand, his successor, was charged with the organization of a new cabinet. He has introduced an innovation by creating a new ministerial office, that of ministère de l'hygiène, de l'assurance et de la prévoyance sociales (social hygiene, social insurance and social provision). The question of appointing a special minister of public health has been considered for some time. The question first came up in 1902, at the time the law in regard to the protection of public health was passed. It was again agitated when the application of the law was extended so as to include the antituberculosis and social hygiene dispensaries. In 1913, Dr. Vaillant, a Paris deputy, had taken the initiative and demanded the creation of the office of minister of public health, and M. Mirman, at that time directeur de l'assistance et de l'hygiène publiques au ministère de l'intérieur, had favored such action. In 1916, Jules-Louis Breton, deputy of the department of Var, presented a more modest proposal to the chamber of deputies. He requested that the office of undersecretary of state for hygiene, in connection with the service of the minister of the interior, be established. The year before, on the initiative of M. Millerand, at that time minister of war, the government had created the office of undersecretary of state for the Service de santé militaire. But during the great epidemic of influenza that raged in France in 1918, it was found that the duties and functions of two duly appointed officials clashed, namely, the undersecretary of state for hygiene, associated with the office of minister of the interior, and the undersecretary of state associated with the Service de santé militaire. In view of this fact, M. Clemenceau organized, under his chairmanship, a ministerial conference, grouping together all the services having to do with health and hygiene, which at that time were scattered through five ministerial departments. Under Prime Minister Millerand this temporary arrangement has taken on a permanent form, and the office of minister of hygiene has been conferred on J.-L. Breton, as already stated. Having been chemical engineer, adviser to the chamber of deputies in matters of social hygiene, and author of the bill aiming to suppress the use of white lead in building paint, Breton was the logical choice for the new post.

A Physician's Responsibility in Accidents Following Subcutaneous Injections

A physician residing in one of the departments outside of Paris is facing, as the result of the death of a client, in whom an abscess developed after an injection, a charge of homicide through imprudence. The Société de Médecine de Paris has interested itself in the case, and has drawn up and approved the subjoined conclusions, which will be presented to the court by the counsel for the defendant:

The Société de Médecine de Paris hereby gives expression to the following opinions: 1. The use of subcutaneous injections of camphorated oil and of strychnin is absolutely indicated in cases of severe typhoid, in order to keep up the general condition of the patient and to forestall cardiac insufficiency. 2. The dose of strychnin employed (6 mg.) is less than the amount that may be injected with safety during a twenty-four hour period. 3. Abscesses may occur during the course of typhoid without giving rise to the presumption of error in the matter of asepsis. 4. The physician in charge of the case is always the judge of the treatment to be employed, and he can modify it according to the exigencies that arise.

Medical Service in the Liberated Regions of France

The minister of liberated regions offers the following conditions to physicians who desire to take up their residence, at least temporarily, in such localities of the liberated regions as are deprived of civilian physicians: 1. The physicians accepted for such service will be placed by the minister of war at the disposal of the minister of liberated regions, but with the stipulation that, whenever local conditions will permit, a certain limited amount of military service may be required. 2. They will continue to be governed by military statutes. 3. Those who are receiving a salary of less than 1,000 francs a month will receive from the minister of liberated regions such additional sum as will make up such total

amount. 4. They will be engaged for a period of three months, which will be renewable, and will be authorized to accept a paying clientage. 5. The minister of liberated regions will provide them with an automobile, and will furnish them gratuitously with tires and gasoline in such amounts as may be necessary to cover their allotted territory.

The first vacancies to be provided for are permanent posts in infirmaries and hospitals, which must be installed and organized in connection with the establishment of certain important centers where laborers needed in building up the desolated regions will be brought together.

A Commemorative Ceremony

A ceremony commemorative of the members of the medical corps who died at the post of duty was held at the Sorbonne, January 25, under the auspices of the Association générale des médecins de France and the Association générale des pharmaciens. The various medical faculties and schools of pharmacy, the academy of medicine, the learned and professional societies and the Service de santé militaire felt called on to take part in this solemn occasion. M. J.-L. Breton, minister of hygiene, presided at the ceremony. He was assisted by Dr. Mourier, former undersecretary of state for the Service de santé militaire, and by Dr. Roger, dean of the Faculté de Médecine de Paris.

In his opening address, Dr. Bellemontre, president of the Association générale des médecins de France, mentioned the fact that out of 22,000 French physicians and surgeons 18,000 were mobilized, and that the percentage of losses in the Service de santé militaire was next to that of the officers of the infantry.

LONDON

Feb. 7, 1920.

Medical and Surgical Units at the London Hospitals

The system of forming medical and surgical units for teaching and investigation at the London hospitals, described in previous letters, is extendng. At St. Thomas's, Dr. E. H. Starling, F.R.S., professor of physiology at University College, has been appointed director of the medical unit, and assistant directors in pathology and clinical medicine are about to be appointed. Sir C. Wallace, surgeon to the hospital, has been appointed director of the surgical unit. At University College, Dr. T. R. Elliott, F.R.S., physician to the hospital, has been appointed director of the medical unit, and Dr. J. W. McNee, recently assistant to the regius professor of medicine and to the professor of pathology at Glasgow, has been appointed deputy and first assistant. Dr. F. M. R. Walshe has been appointed second assistant to the director to control neurologic teaching and research, and also to take charge of electrotherapeutics and massage. The director of the surgical unit is Mr. C. C. Choyce, with two assistants. The directors of units are responsible for the general arrangements of systematic teaching on the principles of medicine and surgery. The instruction of junior students in physical signs and elementary laboratory methods, and the systematic demonstrations and lectures for senior students are to be organized by them, although the teaching of these courses is in certain cases given by other members of the staff. Every student is to take duty during his first year for two months' clerking and two months' dressing with the medical and surgical units, respectively. These terms of clerking and of dressing are intended to follow as far as possible a four months term of duty with other members of the staff. Thus, every student will in due course pass through one or the other unit. During his course of two months' duty under the director of the medical unit, the student will be attached for clinical clerking to some of the special departments, such as the cardiographic, under Dr. T. Lewis. The directors of the units and their assistants have ample accommodation and facilities for research work in the Graham laboratories of pathology.

The Vaccination Position

In his report to the late Local Government Board (now merged in the Ministry of Health), the principal medical officer, Sir George Newman, refers to a number of isolated outbreaks of smallpox, comprising 206 cases in all and affecting fifty-eight sanitary areas. Thanks to the anti-vaccination agitation and the recognition by law of the "conscientious objector," the percentage of children successfully vaccinated in 1917 was only 43.3, and the percentage exempted from vaccination was as high as 37.9. Compared with twenty years ago, these figures are significant, for in 1898, 61 per cent. of the children were successfully vaccinated and only 5 per cent. were exempted. In the years following the last serious epidemic of smallpox (1901-1904), the percentage of vaccinated children rose above 70. On the other hand, the war has led to a great increase of the revaccinated. Although revaccination was not made compulsory on all men who joined the army, a large proportion were revaccinated. At present a greater number of the male population between 20 and 40 years of age have been revaccinated than in former years. Revaccination has also extended to women, for a large proportion of women who joined the auxiliary services of the war were revaccinated. The position, therefore, is that while the adult population is better protected than before, children are less well protected. In the recent cases of smallpox, prompt notification, speedy isolation and diligent inquiry as to contacts, to secure their immediate vaccination, were successful in preventing the spread of infection. But it is held that such measures cannot be relied on when smallpox breaks out in a population unprotected by vaccination. In prevaccination days, the deaths from smallpox were most numerous at ages under 10, and the majority occurred at ages under 5. The unprotected state of the child population of this country is therefore a great danger.

Tests of Cure in Venereal Diseases

The Ministry of Health has issued a memorandum suggesting tests which should be applied before patients suffering from gonorrhea and syphilis can be considered cured. In the case of gonorrhea, a careful search should be made with the urethroscope for signs of urethral disease. While under examination the patient resumes his ordinary mode of life, sexual abstinence alone being enjoined. On three occasions at intervals of a week he comes for the test. Films are prepared from any moisture obtainable from the urethra, secretions expressed from the prostate and seminal vesicles and centrifugalized urine. On at least one occasion the examination of the films is supplemented by the taking of cultures, and when possible a complement fixation test is performed on the serum. In order to provoke a urethral discharge, the patient is encouraged to resume his usual habits as regards alcohol, pickles, curries, etc. For the same purpose full-sized bougies are passed, and instillations of silver nitrate are made, or a provocative injection of gonorrheal vaccine is given. If all these tests prove negative he is provisionally discharged as cured, but is warned to return should he notice anything suspicious. In the case of women the difficulty of being certain of cure is greater. The tests are best made immediately before or after the periods. Provocative treatment is carried out by the application of 15 per cent. silver nitrate solution to the cervical canal or by vaccine injections. Films and cultures are prepared from the cervical canal and urethra. Culture methods are essential in the female owing to the difficulty of finding the gonococcus in films. Whenever possible, the complement fixation test should likewise be employed.

In syphilis, the time factor is of great importance. When more than four years have elapsed since the original infection, the risk of contagion is minimal. Until this period has elapsed, the patient should report for examination at intervals of one month during the first year and of three months during the second. The examination includes inspection of all surfaces of the skin and mucous membranes, and the Wassermann test. At the end of the first and second years of the treatment, a small provocative dose of an arsphenamin compound is given, and the Wassermann test is performed a week later. If four years have passed since infection, the patient is regarded for all practical purposes as noninfectious. He is advised, however, in his own interest to continue under observation until it becomes probable that the disease has been eradicated.

Marriages

EMORY GRAHAM ALEXANDER to Miss Harriet C. Deaver, both of Philadelphia, February 17.

ABRAHAM JABLONS to Miss Ruth Leona Taylor, both of New York City, January 20.

ALBERT G. MILLER to Miss Katherine E. Frutchey, both of Philadelphia, February 10.

Deaths

Edward Chauncey Register, Charlotte, N. C.; University of the City of New York, 1895; aged 59; editor of the *Charlotte Medical Journal* since 1891; president of the Medical Society of the State of North Carolina in 1906, and the Charlotte Medical Society, and president of the State Board of Medical Examiners from 1898 to 1902; of the American Medical Editors' Association in 1915, Medical Councilors of North Carolina from 1903 to 1906, and of the Tri-State Medical Association of the Carolinas and Virginia in 1915; physician in charge of St. Peter's Hospital, Charlotte; formerly professor of practice of medicine in the North Carolina Medical College, Charlotte; president and chief physician of the Charlotte Sanatorium from 1906 to 1916; one of the most prominent and beloved physicians of North Carolina; died in the Charlotte Sanatorium, February 18, from pneumonia.

John Van der Poel ● New York City; College of Physicians and Surgeons in the City of New York, 1881; aged 62; a member of the American Association of Genito-Urinary Surgeons and its president in 1910; a member of the American Urological Association, and a fellow of the New York Academy of Medicine; a member of the staff of New York and Mount Sinai hospitals, and attending genito-urinary surgeon to Washington Heights Hospital; lecturer on obstetrics and later lecturer in clinical genito-urinary diseases in the University of the City of New York; a member of the staff of a hospital at Chateau Annel, France, during the World War; died, February 22.

James Freer Richardson, Winnipeg, Man.; University of London, 1911; M.R.C.S. (Eng.), 1911; L.R.C.P. (Lond.), 1911; aged 35; a medical missionary of the Church Missionary Society at Peshawur, and Dera Ismail Khan, India, who on the outbreak of the World War enlisted and was sent to Mesopotamia as captain of the Thirtieth Advance Casualty Clearing Station, then transferred to Mosul, and later to the Forty-Ninth Indian General Hospital on the Afghan frontier; died in Afghanistan, Nov. 27, 1919, from pneumonia.

Frank James Schoenenberger ● New York City; Bellevue Hospital Medical College, 1896; aged 44; adjunct professor of urology in Fordham University, New York City; a member of the New York Academy of Medicine; assistant genito-urinary surgeon to the City and Sydenham hospitals; genito-urinary surgeon to the Correctional Hospital and surgeon to the state penitentiary; died in Roosevelt Hospital, New York City, February 20, after an operation for the removal of gallstones.

Henry Ardagh Kingsmill, London, Ont.; Western University, London, Ont., 1895; aged 52; demonstrator of anatomy in his alma mater; surgeon of the Seventh Regiment Fusiliers, and after the outbreak of the World War president of the standing medical board of western Ontario; then captain, C. A. M. C., with service in England, and later adjutant and registrar of the Military Hospital, London; died, February 11, from pneumonia following influenza.

Philip Thomas Kennedy ● Hartford, Conn.; Harvard University Medical School, 1909; aged 36; a specialist in pediatrics; for two seasons in charge of the Boston Floating Hospital; pediatrist to St. Francis' and the Baby hospitals and St Agnes' Home, Hartford; died in St. Francis' Hospital, February 14, after an operation for abscess of the lungs.

Wilford Hall Crutcher, Bartlesville, Okla.; Barnes Medical College, St. Louis, 1908; aged 37; formerly assistant superintendent of the Nebraska State Hospital for the Insane, Ingeside; who served during the World War as lieutenant, M. R. C., U. S. Army, and was discharged, Jan. 27, 1919; died, February 12, from pneumonia.

Arthur Brownell Wright ● Hartford, Conn.; College of Physicians and Surgeons in the City of New York, 1895; aged 51; for eight years a member of the staff of the Manhattan Institute for the Insane; and since 1903 chief medical examiner for the Traveler's Insurance Company; died, about February 4.

José Maria Ferrer ● New York City; College of Physicians and Surgeons in the City of New York, 1879; aged 62; a native of Cuba; a member of the New York Academy of Medicine; visiting physician to St. Vincent's and French hospitals, New York City; died, February 23, from heart disease.

● Indicates "Fellow" of the American Medical Association.

Joseph Patrick Murphy, Brookline, Mass.; Harvard University Medical School, 1884; aged 58; also an attorney; assistant chief of the division of child hygiene of the Boston Board of Health since 1911; died in the Peter Bent Brigham Hospital, Boston, February 18, from bronchopneumonia.

Dwight Culver Smith, Goff, Kan.; University Medical College of Kansas City, Mo., 1904; aged 41; a member of the Kansas Medical Society; captain, M. C., U. S. Army, during the World War, with service overseas, and discharged, March 7, 1919; died, February 15, from influenza.

Thomas Alexander Lee, Jr., Hibbing, Minn.; George Washington University, Washington, D. C., 1908; aged 36; who served during the World War as lieutenant, M. R. C., U. S. Army, and was discharged, Aug. 15, 1919; died at the home of his father in Washington, February 19.

Albert Mealey Dunlap, Cleveland; Cleveland College of Physicians and Surgeons, 1905; aged 37; lieutenant, M. C., U. S. Army, during the World War, and discharged, Jan. 16, 1919; was taken ill with pneumonia at the home of a patient, and died there, February 10.

George William Brock ● Atlanta, Ill.; Northwestern University Medical School, Chicago, 1910; aged 41; who served as captain, M. R. C., U. S. Army, during the World War, and was discharged, March 18, 1919; died, February 17, from an infection following influenza.

John Beriah Ellis, Springfield, Mass.; Bellevue Hospital Medical College, 1871; aged 74; for many years a practitioner of Little Falls, N. Y., and health officer and coroner of Herkimer County; died at the home of his daughter in Springfield, February 10.

Ernest Henry Noyes ● Newburyport, Mass.; Harvard University Medical School, 1880; aged 66; city physician of Newburyport; a member of the staff of the Anna Jaques Hospital; died, February 7, from valvular heart disease.

Samuel Dixon Sturgeon, New Galilee, Pa.; Western Reserve University, Cleveland, 1884; aged 69; a member of the Medical Society of the State of Pennsylvania; died at the home of his sister in New Brighton, Pa., February 12.

Willet Jeremiah Herrington ● Bad Axe, Mich.; University of Michigan, Ann Arbor, 1882; aged 63; for fourteen years surgeon in chief of the Hubbard Memorial Hospital; died in that institution, February 10, from pneumonia.

John H. Baldwin, Calera, Okla.; Memphis (Tenn.) Hospital Medical College, 1895; aged 60; for two terms a member of the state legislature from Bryan County; died, February 14, from pneumonia following influenza.

Lovick W. Philips, Girard, Ala.; Tulane University, New Orleans, 1861; aged 84; surgeon of the Thirty-Second, Georgia, Infantry, C. S. A., and later captain of cavalry during the Civil War; died, January 22.

Theophilus W. Bennett, Long Beach, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 67; formerly of Lenox, Iowa, and for three terms a member of the Iowa state senate; died, February 3.

Joseph Antoine Beaudry, Montreal; University of Victoria College, Cobourg, Ont., 1878; aged 67; inspector general of the superior council of hygiene of the providence of Quebec since 1888; died, Dec. 2, 1919.

Jeptha Dillon, Fillmore, Calif.; Medical College of Ohio, Cincinnati, 1873; aged 75; once president of the Greenwood County (Kan.) Medical Society, and a practitioner of Eureka; died, February 9.

Loren L. Gray, Powersville, Mo.; Northwestern Medical College, St. Joseph, Mo., 1884; aged 58; a member of the Missouri State Medical Association; died, Dec. 20, 1919, from acute pancreatitis.

Henry Beauregard Disharoon, Roanoke, Ala.; College of Physicians and Surgeon, Baltimore, 1885; aged 59; a member of the Medical Association of the State of Alabama; died, February 11.

Charles A. Wakeman, Tawas City, Mich. (license, Michigan, five years' practice, 1900); aged 66; died at Pinconning, Mich., January 25, from dilatation of the heart due to bronchial asthma.

William J. Willim, Wynne, Ark.; College of Physicians and Surgeons, Keokuk, Iowa, 1882; aged 66; formerly a practitioner of Joplin, Mo., and physician of Jasper County; died, January 21.

John Stanley Thibaut, Donaldsonville, La.; Tulane University, New Orleans, 1883; aged 60; vice president of the Bank of Ascension; died in Touro Infirmary, New Orleans, February 12.

Robert John Gordon, U. S. I. S., Gordon, Wis.; George Washington University, Washington, D. C., 1917; an Indian physician; aged 25; died, February 10, from pulmonary tuberculosis.

John William MacKay, Calgary, Alberta; Western University, London, 1907; aged 39; captain, C. A. M. C.; died, Oct. 25, 1919, from pulmonary embolism following appendectomy.

James T. Douglas, Ferguson, Mo.; Washington University, St. Louis, 1859; aged 84; a member of the Missouri State Medical Association; died in St. Louis, Nov. 29, 1919, from uremia.

George Levi Alexander, Milwaukee; Hahnemann Medical College, Chicago, 1888; aged 54; a member of the staff of Hanover Hospital; died, February 13, from cerebral hemorrhage.

John Wesley Ishmael ● Winchester, Ky.; Jefferson Medical College, 1872; aged 70; president of the medical staff of Clark County Hospital; died, February 6, from pneumonia.

James H. Shepperd, Peoria, Ill.; Meharry Medical College, Nashville, Tenn., 1899; aged 54; captain, M. C., Ill. N. G., and assigned to the Eighth Infantry; died, February 10.

Earl C. Rieger ● Kansas City, Mo.; University Medical College of Kansas City, Mo., 1906; aged 41; also an attorney; died, January 28, from pneumonia following influenza.

Edgar Parker Hershey ● Denver; Jefferson Medical College, 1888; aged 58; once president of the Denver and Arapahoe County Medical Society; died, January 27.

Anna T. Dunn Roe Murphy, Detroit; Michigan College of Medicine and Surgery, Detroit, 1894; a member of the Michigan State Medical Society; died, February 14.

Hannah C. Reinhold, Williamsport, Pa.; State University of Iowa, Homeopathic College of Medicine, Iowa City, 1892; aged 64; died, February 11, from pneumonia.

Robert C. Forsyth ● Kirkwood, Mo.; Washington University, St. Louis, 1902; aged 40; died in St. Luke's Hospital, St. Louis, February 8, from influenza.

Jerome A. Heath, Cleveland, University of Wooster, Cleveland, 1884; aged 60; one of the founders of St. Clair Hospital, Cleveland; died, Dec. 10, 1919.

John Paul Golden, Pittsburgh; University of Pittsburgh, 1888; aged 56; a member of the Medical Society of the State of Pennsylvania; died, February 7.

Zenas Cather Clayton, Chicago; Kansas City Hospital College of Medicine, Kansas City, Mo., 1885; aged 62; died, February 10, from heart disease.

William Gage Potter, South Dartmouth, Mass.; University of the City of New York, 1888; aged 55; died, Dec. 18, 1919, from tuberculosis of the lungs.

Irvine Ketcheson Mott, Cincinnati; Pulte Medical College, Cincinnati, 1883; aged 59; died in Covington, Ky., February 7, from cerebral hemorrhage.

George Maurice Steiskeni, St. Louis; Washington University, St. Louis, 1880; aged 58; died, February 14, from pneumonia following influenza.

William John Martin, Philadelphia; Jefferson Medical College, 1881; aged 61; a practitioner of dentistry for many years; died, February 12.

Cincinnatus C. Maddox, Alpharetta, Ga.; Atlanta (Ga.) Medical College, 1880; aged 61; died in a sanatorium in Atlanta, January 6.

Andrew B. Spinney, Ionia, Mich.; Homeopathic Hospital College, Cleveland, 1859; aged 84; an itinerant practitioner; died, February 7.

Robert Edward Bradsher ● Marmaduke, Ark.; Memphis Hospital Medical College, 1904; aged 43; died, February 8, from pneumonia.

Louis Kaelin, Louisville, Ky.; Kentucky School of Medicine, Louisville, 1894; aged 62; died, Dec. 29, 1919, from bronchiectasis.

Alexander Franklin Durham, Sparta, Ga.; Jefferson Medical College, 1887; aged 54; died, January 30, from valvular heart disease.

Nelson Gregory Hall, Nut Plains, Conn.; Yale University, New Haven, 1860; aged 86; died, January 15, from senile debility.

Hal Augustine Hardeman, Melrose, Texas; Atlanta (Ga.) Medical College, 1891; aged 60; died, February 3.

Charles Frederick Sporman, Headland, Ala.; University of Alabama, Mobile, 1886; died, January 31.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

GREEN'S DROPSY REMEDY

For some years THE JOURNAL has been receiving inquiries regarding "Green's Dropsy Remedy," put on the market by "Dr. H. H. Green's Sons," Atlanta, Ga. It is now sold by Dr. Thomas E. Green, who claims to be a successor to "Dr. H. H. Green's Sons," and it now comes from Chatsworth, Ga.

The business is a mail-order one. As with others of a similar type, the advertising claims in the past few years have undergone the usual modifications from the "lie direct" to the "lie with circumstance" as the following quotations—italicized by us—will show:

OLD CLAIMS	RECENT CLAIMS
"Dr. H. H. Green's Sons *Cure* Dropsy In All Its Various Forms."	"Dr. H. H. Green's Sons *Treat* Dropsy In All Its Various Forms."
"Have *cured* many thousand cases after having been pronounced *utterly* hopeless by eminent physicians."	"Have *relieved* many thousand cases after having been pronounced *almost* hopeless by eminent physicians."
"The Only Reliable and Successful Dropsy Treatment Known."	[Statement eliminated.]
"We have *cured thousands* of seemingly hopeless cases."	"We have *relieved hundreds* of seemingly hopeless cases."
"We have *cured* many patients after the family doctor had said there was *no* hope for recovery."	"We have entirely *relieved* many patients after the family doctor has said there was *little* hope for recovery."

The methods by which the Green concern gets in touch with prospective purchasers are the usual ones: Advertisements in the cheaper grades of magazines and in not-too-particular newspapers. In some cases advertising booklets have been mailed to small towns in various parts of the country addressed to "The Mayor or Any Minister of the Gospel." Those who answer the advertisements (which offer "a free trial treatment") are sent a question blank which must be filled in and returned before the sample is sent. With the sample is a statement to the prospective purchaser to the effect that if he wishes to take a course of "regular treatments" these will cost $10 or $15 each, as the case may be.

The "treatment" itself comes in the form of large black balls or boluses which when first sent out are moderately soft but become harder on keeping. One treatment seems to consist of six large boluses and six small ones—even the small ones are heroic in size. In addition, some purchasers receive "Tonic Tablets." The purchaser is directed to take "a large ball dissolved in a little water at nine o'clock at night and a small ball at midnight." At six o'clock the next morning and *every hour* thereafter until eleven a. m. a substantial dose of Epsom salt is to be taken in quantities sufficient to create a large number of bowel movements. This dosing is to be repeated "every other night and day until all dropsical accumulation is removed from the system"! The boluses and tonic tablets were examined by the Association's chemists who have reported as follows:

CHEMISTS' REPORT

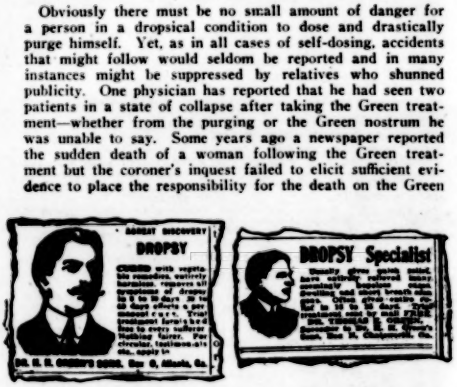
"One 'treatment' of Green's Dropsy Remedy, consisting of large balls or boluses, small balls or boluses and 'Grey Tonic Tablets' was examined. The small balls and the large balls appear to be of the same composition. The masses are brownish-black in color. When first received they were of about the consistence of a stiff pill mass but they became harder on keeping. Iodids, alkaloids, emodin-bearing drugs and magnesium sulphate were absent. The boluses yielded about 4.2 per cent. of ash in which were found iron, calcium, a sulphate and a phosphate, each in small amounts. Microscopic examination revealed the pres-

ence of a vegetable drug which appeared to be powdered squill. The preparation contained a considerable amount of dark colored extractive but this could not be identified. It was darker in color than would be expected from squill. It resembled licorice extract but tests for glycyrrhiza were negative. Reducing sugars were present.

"Examination of the 'Grey Tonic Tablets' failed to reveal any potent drug except an iron salt, equivalent to about 2.65 per cent. of iron. The iron was present in both the ferric and ferrous condition, which would warrant the suspicion that dried ferrous sulphate is the salt used in the manufacture of the tablets. Large quantities of starch and calcium sulphate were present. Alkaloids, iodids and emodin bearing drugs were absent.

"To sum up: The boluses, large and small, appear to contain powdered squill as the chief medicinal ingredient. The tablets contain an iron salt, probably dried ferrous sulphate, as the chief medicinal ingredient."

Obviously there must be no small amount of danger for a person in a dropsical condition to dose and drastically purge himself. Yet, as in all cases of self-dosing, accidents that might follow would seldom be reported and in many instances might be suppressed by relatives who shunned publicity. One physician has reported that he had seen two patients in a state of collapse after taking the Green treatment—whether from the purging or the Green nostrum he was unable to say. Some years ago a newspaper reported the sudden death of a woman following the Green treatment but the coroner's inquest failed to elicit sufficient evidence to place the responsibility for the death on the Green



Facsimiles (reduced) of old and more recent advertising.

product. No necropsy or analysis was made in the case. In the case of another woman who also died suddenly while taking the Green dropsy cure, the local health office sent Green a death certificate advising him that the family declared that he was treating the woman at the time of her death. The only information given in the certificate as returned was the name and age of the woman and the statement that the primary cause of death was "Heart and Kidney trouble producing Anasarca."

Whatever part the Green "cure" may have played in these cases, one thing is certain: The product is one that has no legitimate place among home remedies. The public does not realize that dropsy is a symptom and not a disease and usually a symptom of serious import. For a person suffering from either heart or kidney trouble to attempt to treat himself with powerful drugs for the dropsical condition that may follow is the height of unwisdom. The idea that such serious conditions can safely and intelligently be handled on the mail-order plan without any physical examination of the patient or even seeing the patient is, of course, preposterous.

Deaths from Tuberculosis.—According to official census figures the death rate from all forms of tuberculosis in Wilmington, N. C., had fallen from 272.3 in 1912 to 180.9 per hundred thousand in 1917, which is the last year for which federal figures are available. This annual saving averages twenty-three lives a year for five years from tuberculosis alone. Capitalizing each life at the very low estimate of $2,000, shows an annual saving of $46,000, or $230,000 for the five years, which is an amount greatly in excess of what was contributed both for Red Cross Christmas seals and the health department.—*Our Communal Health*, October, 1919.

Correspondence

CONDITION OF THE OLIVES RESPONSIBLE FOR THE NEW YORK OUTBREAK OF BOTULISM

To the Editor:—In an editorial entitled "Botulism from Ripe Olives" (THE JOURNAL, Feb. 21, 1920, p. 530), the following sentence appears relative to the physical characteristics of the olives responsible for the recent outbreak of botulism in New York City, a report of which is printed in the same issue of THE JOURNAL: "Although a half bottle of ripe olives, probably the one that contained the toxin, was found in the home of the victims, no statement is made about the physical condition of these olives." The following information might well have appeared in the article:

The three olives received for examination were in a turbid, brownish tinged with red, watery fluid which was very difficult to see through. There was a slight flocculent precipitate in the bottom of the bottle. The olives themselves were lighter in color than ordinary ripe olives, having a tan, buff, almost straw color. They were somewhat spotted, each olive having several distinct black spots in it which stood out sharply from the lighter, general color of the olive, possibly areas from which the normal black color had not yet faded. In addition there were small, whitish, flocculent, irregular, lichen-like spots, giving somewhat the impression of being deposited on the surface, scattered irregularly over each olive. They had lost the shining luster usually seen in normal ripe olives. In consistency they were softer and not so firm as normal ripe olives. They were not, however, actually mushy, and could be lifted out of the bottle on the point of a knife.

The odor, in addition to that of ripe olives, had a weak but apparently quite definite putrefactive tinge. There was no suggestion of butyric acid. There was considerable controversy in the laboratories in New York and Boston as to whether the odor present in the olives could be considered characteristic enough to be of protective value to the average individual. Among those men who had worked with *B. botulinus*, and particularly those who had handled the olives from the Canton and Detroit outbreaks, there seemed to be no question as to the definiteness of the odor. Some of these men were so sure of their sense of smell that they ate olives from bottles of the same brand which were being investigated and which did not hold the suspicious odor. On the other hand, laboratory workers who had not had particular experience with *B. botulinus* were very skeptical and not inclined to feel that the average individual would have refused to eat these particular olives on account of a disagreeable odor. In our own laboratories, even among men who had frequently smelled *B. botulinus* cultures in various mediums, there was considerable controversy.

At present, almost seven weeks after the outbreak, these olives present the same picture, much accentuated in every way. They are now light tan, the black spots are not so numerous (owing possibly to gradual loss of the normal black color as the process of putrefaction progresses), the liquor is perhaps more turbid and deeper in color than it was, and the flocculent precipitate is more abundant. The liquor is covered with a thin, greenish mat of mold. The whitish, lichen-like spots are more numerous than before. The olives are now so mushy that they cannot be lifted on the point of a knife. The odor is much less marked than seven weeks ago. (The bottle has been tightly corked, though not sealed.) It is now a sweetish, spicy, weakly pungent odor, suggestive, but not definitely putrefactive, in character. There is no consensus as to what may be called a "characteristic" botulinus odor. In fact, there is a growing belief that *B. botulinus* does not have a "characteristic" odor any more than other anaerobic putrefactive organisms have. An odor of putrefaction may perhaps, to a greater or less degree, be present, but other than that it seems unwise to say more at present.

DWIGHT L. SISCO, M.D., Boston.

A CABINET OFFICER FOR SUPERVISION OF NATIONAL HEALTH AND EDUCATIONAL PROBLEMS

To the Editor:—Medicine has never been so efficient, so well organized or so thoroughly appreciated as it is now. The power to exercise our knowledge of disease and its control, as shown by our care of the millions engaged in warfare, the use of vaccines, serums and antitoxins by the wholesale, and the results of the surgical treatment of wounds and the prevention of infection, has given the profession a public recognition never before accorded it. This resulted from the enforced medical organization endowed with military authority and opportunity. The examination and supervision of the recruits gave wonderfully valuable information concerning both the lack of supervision of the health of young persons engaged in the occupation of education, and the lack of supervision of education. In our country's rapid commercial advancement we have been glad to use immigrant labor whose cost of production fell on Europe, and little attention was given to the health problems of labor.

In a general way, medical organizations of the past have been wont to criticize the attitude of both the government and the public concerning public health problems, as well as their failure to appreciate the necessity of establishing national standards of medical education and control of medical practice. I have always had a firm conviction that the reward of labor is in a fairly just measure in proportion to what is given; and it is undoubtedly true that medical standards are appreciated by the public as representing the average of medical knowledge so far as the public has had the opportunity to learn of them. Medical men have done little in local or state civic affairs, especially in lines in which they are competent to give advice, that is, education and public health problems. There should be a physician on every school board; also, a member of the city council should be a physician, and local medical organizations should actively support the public health officials. The fact is that the profession is only now ready to do its part in our civic life by reason of these very standards, which have been made as a result of military control of medical affairs and their application. The rapid evolution and advance of medicine in the last few decades has only now made this possible. I feel, then, that there should be no unjust criticism of the President for not appointing on the industrial investigating committees a single physician, large as the personnels have been, although in these conferences there were serious problems of health to be considered in its relation to hygiene, housing, child welfare, food and education, conditions which are properly medical problems.

We now have the greatest power, although it is intangible, which has ever existed, and which may be turned to our aid: that is, the psychic condition that has resulted from the mental concentration of the civilized people of the whole world on war and its problems for a period of five years without a day's intermission. The after-war condition as a result of the mental strain leaves the whole world in a chaos of disorganization and mental instability. In the individual we would call the condition a neurosis. We should take advantage of this psychic condition in our reconstruction problems along educational and public health lines, which are now matters of general discussion in this country, so as not only to serve the people of coming generations but also to maintain the present prestige of medicine. The many bills now before Congress in which the real motive is a health problem show the deep public concern.

In Washington, where medical standards and health problems should be representative, I found after nearly two years' residence that, so far as the government is concerned, medical affairs are most incoordinate. Laws controlling health problems, which have divided medical affairs among every cabinet bureau and numerous committees and boards, numbering about eighteen in all, have been passed as riders on necessary bills and appropriations. These boards seriously overlap in the conception of their functions, and there is apparently no way of securing coordination, although in their general activities much good is accomplished. The largest service is the Public Health Service under the Treasury Department; under Labor is Child Welfare, Prevention of Industrial Accidents and special boards; under the Department of the Interior is the care of the insane, not otherwise looked after and the Board of Indian Affairs; under Commerce, all statistical records relating to health and mortality, acceptable from about thirty-four states; under Agriculture, the Food and Drugs Act. I mention these few to show the condition. Rather lavish appropriations are made by the government for all the hospitals in Washington, and an equal amount by the board of the District of Columbia. All in all, a sufficient amount is thus expended locally to make government officials feel that they are doing much for the care of public health. Congress stands ready to help in the emergency of sickness like the recent influenza epidemic, when half a million dollars was appropriated for its control, it being much easier to give than to spend wisely.

With the high cost of labor and its rapid turnover, industrial organizations have taken every precaution to look after the health, housing, child welfare and social life of their industrial workers, to them an economic problem. The greatest industry of our country today is education, and we have learned from the examination of our draft recruits that there has been little care in general given to child welfare or to the protection of the health of the youth of our country thus engaged. The national need today for Americanism is intelligent supervision, with authority, of both education and public health, and the most important problem is that of health. While it may not be possible to secure a bureau chief for each, it should be possible to secure an official who would have supervision of health in the United States and coordinate the multitude of health problems now existing, as well as having the supervision of education.

CHARLES H. MAYO, M.D., Rochester, Minn.

DESTRUCTION OF B. BOTULINUS TOXIN BY BOILING RIPE OLIVES

To the Editor:—A number of deaths in various sections of the country have been attributed to poisoning due to toxin formed by *Bacillus botulinus* in canned ripe olives. This toxin is readily destroyed by heat. The flavor of ripe olives is not materially affected nor is the texture destroyed if the olives are boiled for fifteen minutes in the liquid in which they are preserved. This amount of heat is sufficient to destroy the toxin, and the product can be eaten with safety. This method will also exaggerate the odor of decomposition and tend to discourage the serving of olives partially spoiled. In every instance the olives were said to have a "queer odor." This is a simple method, easily applied, and would seem to eliminate the danger from eating ripe olives.

M. GRUNFIELD, Albuquerque, N. M.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

REMOVAL OF TATTOO MARKS

To the Editor:—During the war, thousands of Armenian girls and children were taken by Turks and Kurds, and their faces tattooed. Now some of them have been brought back as refugees to their parents with their faces bearing these ugly tattoo marks. Please describe a method of treatment for removing these marks without leaving any scar.

DR. M. HOVNERIAN, Aleppo, Syria.

ANSWER.—Replies to this question have appeared several times in Queries and Minor Notes. The methods of Variot and Brault have been recommended. The principle in each is to excite an inflammatory process by means of chemical irritants so as to cause destruction of the superficial layers of skin.

Variot uses as an irritant silver tannate produced by tattooing in a strong solution of tannin and rubbing a silver

nitrate pencil over the spot until it is blackened by the formation of silver tannate.

Brault removes the marks by tattooing the surface with a solution of 30 parts of zinc chlorid to 40 parts of water. A slight crust forms after these applications, the spontaneous removal of which after two weeks is followed by a pink cicatrix which gradually becomes of normal color.

The method is also described in practically all textbooks on diseases of the skin.

MALLORY'S EOSIN AND METHYLENE BLUE TISSUE STAIN —VLEMINCKX' SOLUTION

To the Editor:—Please supply me with (1) the formula and technic for Mallory's eosin and methylene blue tissue stain; and (2) the formula for Vleminckx' solution. I find frequent references to these items, but am unable to find the formulas and technic in any of my books.

MILES J. BREUER, M.D., Lincoln, Neb.

ANSWER.—1. A formula and technic for the eosin and methylene blue tissue stain may be found in Mallory, F. B., and Wright, J. H.: Pathological Technique, Ed. 6, Philadelphia, W. B. Saunders Company, 1915, p. 328.

The instructions given there are as follows:

Fix in Zenker's fluid.

Stain paraffin section in 5 per cent. aqueous solution of eosin for twenty minutes or longer. To get a deeper eosin stain place the sections in the paraffin oven for from fifteen to twenty minutes.

Wash in water to get rid of the excess of eosin.

Stain in Unna's alkaline methylene blue solution diluted one part to four or five parts of water for ten or fifteen minutes.

Wash in water.

Differentiate and dehydrate in a dish of 95 per cent. alcohol, keeping section in motion to decolorize uniformly. Control results under the microscope; when pink color has returned to the section and the nuclei are still deep blue, finish dehydration quickly with absolute alcohol.

Xylene.

Xylene balsam.

For celloidin sections use 95 per cent. alcohol, blot, and pour on xylene; repeat the last two steps until the specimen is clear.

Unna's alkaline methylene blue solution consists of methylene blue, one part; potassium carbonate, one part; water, 100 parts. For staining, the solution should be diluted 1:10 or 1:5; ripening the solution for a week improves the results.

2. The formula for Vleminckx' solution was published in THE JOURNAL, Jan. 24, 1920, p. 268.

STANNOXYL: A TIN PREPARATION

To the Editor:—I am very anxious to know whether tin or stannous oxid (SnO) has or has had any place among useful drugs. I have seen such a prescription given in the treatment of mucous colitis, and would be very glad to learn what its use may be.

CARLOS MANUEL GARCIA, M.D., Havana, Cuba.

ANSWER.—Recently, on the assumption that tin workers are less troubled with boils than the average person, two French investigators proposed the use of tin compounds in the treatment of staphylococcic infections. Based on their work, a proprietary preparation—Stannoxyl—has been placed on the market which is claimed to be "composed of stannous oxide and specially purified metallic tin." Absurd claims are made for the product: for instance: ". . . We have no hesitation in offering STANNOXYL—in Tablets or Cachets—as the only true specific for diseases of Staphylococcus origin." The available evidence is unconvincing and in no way warrants such exaggerated statements.

Industrial Physician.—The industrial physician of the future must be able to interpret industrial processes, understand the operation of mechanical appliances, size up the human requirements for filling a certain job, make scientific studies of the hazards of occupations, make certain that proper working conditions are provided for the industrial population, and interpret these findings in terms of increased production, decreased labor turnover, and healthier and happier workers. He should also be able to tune up the home, community and industrial environment so that each would bear its part of carrying forward the great commercial life of the Nation.—F. L. Rector: *Public Health Rep.*, Jan. 9, 1920.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, April 6-7. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

COLORADO: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven and Hartford, March 9-10. Sec., Reg. Bd., Dr. Robert L. Rowley, Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec., Eclectic Bd., Dr. James Edwin Hair, 730 State St., Bridgeport.

DISTRICT OF COLUMBIA: Washington, April 13-15. Sec., Dr. Edgar P. Copeland, the Rockingham, Washington.

FLORIDA: Jacksonville, March 16. Sec., Homeo. Bd., Dr. Geo. A. Davis, East Port.

IDAHO: Boise, April 6. Commissioner, Hon. Robert A. Jones, Boise.

IOWA: Iowa City, March 29-31. Sec., Dr. Guilford H. Sumner, Capitol Building, Des Moines.

MAINE: Portland, March 9-10 Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

MASSACHUSETTS: Boston, March 9-11. Sec., Dr. Walter P. Bowers, Room 144, State House, Boston.

MINNESOTA: Minneapolis, April 6-8. Sec., Dr. Thos. McDavitt, Lowry Bldg., St. Paul.

MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW HAMPSHIRE: Concord, March 11-12. Sec., Dr. Charles Duncan, Concord.

OKLAHOMA: Oklahoma City, April 13-14. Sec., Dr. J. M. Byrum, Shawnee.

RHODE ISLAND: Providence, April 1-2. Sec., Dr. Byron U. Richards, State House, Providence.

WEST VIRGINIA: Charleston, April 13. Sec., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Oregon July Examination

Dr. Frank W. Wood, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, July 1-3, 1919. The examination covered 11 subjects and included 90 questions. An average of 75 per cent. was required to pass. Twenty-seven candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	No. Licensed
Bennett College of Eclectic Med. and Surg.		(1906)	1
Rush Medical College		(1919)*	1
University of Illinois		(1913)	1
Keokuk Medical College		(1895)	1
College of Physicians and Surgeons, Baltimore		(1891)	1
Harvard University		(1916)	1
Kansas City University of Phys. and Surgs.		(1919)	1
University Medical College of Kansas City		(1908)	1
Lincoln Medical College		(1917)	1
Fordham University		(1917)	1
University of Oregon		(1908), (1918, 3), (1919, 6)	10
Jefferson Medical College		(1912), (1917)	2
Medico-Chirurgical College of Philadelphia		(1916)	1
University of Pennsylvania		(1894)	1
Marquette University		(1919)	1
McGill University		(1902)	1
University of Amsterdam		(1910)†	1

* Received certificate of four years' work; will receive M.D. degree on completion of intern year.

† Graduation not verified.

Wisconsin October Meeting

Dr. John M. Dodd, secretary of the Wisconsin State Board of Medical Examiners, reports that 3 candidates were licensed by reciprocity and 17 candidates were licensed by virtue of a commission in the Medical Corps, at the meeting held Oct. 27, 1919. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1919, 2)	Illinois
St. Louis University		(1917)	Missouri

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Chicago Homeopathic Medical College		(1897)	U. S. Army
Hahnemann Medical College, Chicago		(1916), (1917)	U. S. Army
Northwestern University		(1909), (1916, 2)	U. S. Army
Rush Medical College		(1916, 2)	U. S. Army
University of Louisville		(1917)	U. S. Navy
University of Minnesota Medical School		(1912), (1917)	U. S. Army
Washington University		(1916), (1917)	U. S. Army
Columbia University		(1917)	U. S. Navy
New York Homeopathic Med. Coll. and Flower Hosp.		(1917)	U. S. Army
University of Pennsylvania		(1916)	U. S. Army
Vanderbilt University		(1915)	U. S. Army

Book Notices

REPORT ON THE PRESENT STATE OF KNOWLEDGE CONCERNING ACCESSORY FOOD FACTORS (VITAMINES). Medical Research Committee, Special Report Series. No. 38. Boards. Pp. 103, with illustrations. London: His Majesty's Stationery Office, 1919.

This gives an excellent summary of our knowledge of these unknown essential substances, which go by various names and are concerned in different clinical conditions. A sentence selected from the introduction emphasizes our need for future investigation in this field, and expresses well the feeling of all investigators of this topic: "The practical importance of the facts will not be understood unless it be recognized that a deficiency in food, which when complete or extreme leads to actual disease, may, when only relative, be responsible for ill health of a vague but still important kind." The accessory food factors are classified according to the division made by McCollum, that is, fat-soluble A and water-soluble B, evidence being set forth that the latter is identical with the antiberiberi factor. In addition, the antiscorbutic vitamin is given an equally prominent place as a third distinct factor. The chemical and resistant properties and the distribution among foodstuffs of each are discussed. In the table on the protective value of various foodstuffs against scurvy, the tomato is not included. Since Hess has demonstrated the value of this food as an antiscorbutic, it ought to appear in such a table. Two instructive chapters on the application of experimental work to the practical problems of adults' and infants' diets give many useful data for the dietitian. Rickets is classified as a deficiency disease in which the antirachitic factor has a possible identity with the fat-soluble A factor. Pellagra is likewise considered a deficiency disease, but one in which the underlying cause is more or less undetermined. The appendix is a guide for those who wish to know what foods are rich in the accessory food factors, and gives instructions on the prevention of the well-known deficiency diseases.

PRAKTIKUM DER MEDIZINISCHEN CHEMIE. Einschliesslich der Forensischen Nachweise für Mediziner und Chemiker. Von Dr. Sigmund Fränkel, Professor der Medizinischen Chemie an der Universität in Wien. Paper. Price, 18 marks. Pp. 439, with illustrations. Berlin: Urban & Schwarzenberg, 1918.

By those familiar with Fränkel's "Arzneimittelsynthese," the Praktikum der medizinischen Chemie will be examined with interest. The book aims to be sufficiently comprehensive to be used as a guide book in the instruction of physicians and chemists who desire more than usual knowledge of pure and applied medicinal chemistry. It contains methods for qualitative and quantitative inorganic analysis, the detection and analysis of many organic substances used in medicine, and the methods used in physiologic, pathologic and forensic chemistry. In a work of less than 450 pages the subdivisions in such a comprehensive task must necessarily be brief; yet no subject important to the field appears to have been omitted. The methods are given without much discussion concerning the interpretation of results, the latter being left to the teacher and analyst using the book. No bibliography is given, although usually the methods are described under the author's name. The work should prove useful to the chemists of municipal and public health laboratories, but will not be of much value to practicing physicians.

ANAPHYLAXIS AND ANTI-ANAPHYLAXIS AND THEIR EXPERIMENTAL FOUNDATIONS. By A. Besredka, Professor at the Pasteur Institute. Preface by Dr. E. Roux. English Edition by S. Roodhouse Gloyne, M.D., D.H.P., Pathologist, City of London Hospital for Diseases of the Chest, Victoria Park. Cloth. Price, $2.25 Pp. 143. St. Louis: C. V. Mosby Company, 1919.

For a monograph of 130 pages this book is abundantly introduced, there being four introductions, one each by Vaughan, Roux, the author and the translator. It is principally valuable as summarizing the important work of Besredka and his associates on anaphylaxis up to a time shortly before the war. There is a brief chapter by the translator which purports to bring the work up to date, but it is by no means complete or adequate in this respect. It is far from being a full statement of our present knowledge of this subject but does give much information in a very readable form. Besredka is among those who hold that there is no anaphylactic poison or anaphylatoxin, believing that the antibody makes possible the entrance of the antigen into certain nerve cells, where it causes the observed disturbances. He discusses at particular length the resistance conferred to man or animals by injection of a nonfatal dose, for which condition he uses the term "antianaphylaxis," although the term "desensitization" is to be preferred. The work is attractively written and well translated, although there are several errors to be noted.

DIGEST OF COMMENTS ON THE PHARMACOPOEIA OF THE UNITED STATES OF AMERICA AND ON THE NATIONAL FORMULARY FOR THE CALENDAR YEAR ENDING DECEMBER 31, 1915. By A. G. DuMez. Hygienic Laboratory Bulletin No. 118. Paper. Price, 35 cents. Pp. 456. Washington: Government Printing Office, 1919.

DIGEST OF COMMENTS ON THE PHARMACOPOEIA OF THE UNITED STATES OF AMERICA AND ON THE NATIONAL FORMULARY FOR THE CALENDAR YEAR ENDING DECEMBER 31, 1916. By A. G. DuMez. Hygienic Laboratory Bulletin No. 119. Paper. Price, 20 cents. Pp. 316. Washington: Government Printing Office, 1919.

Reviews of this annual volume have appeared in THE JOURNAL from time to time. The digests were formerly prepared by M. I. Wilbert, who died in 1916. The interruption caused by his death and the selection of a successor delayed the appearance of the 1915 volume until now, so that the volumes for 1915 and 1916 have appeared simultaneously. A part of the manuscript on the former volume had been prepared by Mr. Wilbert, and Dr. DuMez has continued the compilation according to the system inaugurated by his predecessor. The digests contain not only the abstracts of criticisms that have been made on drugs that are described in the U. S. Pharmacopeia and National Formulary, but also comments on all kinds of substances that are used in medicine or which are likely to be so used. The abstracts are unbiased, commendatory and condemnatory comments being given equal prominence. The physician or pharmacist who owns the work has at his command the consensus on the therapeutic status of drugs, as well as their market quality, tests for their identification and purity, and methods for making their preparations. Within certain limits for free distribution, copies may be obtained by application to the Surgeon-General of the Public Health Service, Washington, D. C. They may also be obtained at a nominal price from the Superintendent of Documents, Washington, D. C.

NERVOUS AND MENTAL DISEASES. By Archibald Church, M.D., Professor of Nervous and Mental Diseases, Northwestern University Medical School, Chicago, and Frederick Peterson, M.D. Ninth edition. Cloth. Price, $7 net. Pp. 949, with 350 illustrations. Philadelphia: W. B. Saunders Company, 1919.

The authors state that no radical changes have been made in the new edition, and that they are suspending judgment concerning certain advanced views until time and experience have determined whether or not these matters are to become established. The subjects of general paresis and traumatic insanity have been rewritten. There is brief mention of the newer views concerning lethargic encephalitis. The work is a standard text of well merited popularity.

THE OPERATIVE STORY OF GOITRE. The Author's Operation. By William S. Halsted. The Johns Hopkins Hospital Reports, Volume 19, Fasciculus 2. Price, $3.50. Paper. Pp. 257, with illustrations. Baltimore: Johns Hopkins Press, 1919.

As might be surmised from a glance at the title, in this book is presented a historical account of the development of the operative treatment of goiter. It brings out in a striking manner the enormous influence of the introduction of general anesthesia, and with it a more deliberate method of operating; of the development of aseptic technic, and of a third factor of which little is written, namely, the invention of the artery clamp. Hemorrhage, with or without infection, was the cause of death in most of the early strumectomies, and it might almost be said that the invention of the artery clamp made goiter operations possible. To the shallow faddist who gets his information from the advertising pages of his med-

ical journals, and whose chief aim therefore is to be "up to the minute," this book will make no appeal; to the earnest student of surgery, to the man who appreciates broad, deep foundations, to the real builders in medicine, it will afford inspiration to increased effort and better work.

Social Medicine and Medical Economics

THE PHYSICIAN'S BURDEN UNDER WORKMEN'S COMPENSATION ACTS

M. L. HARRIS, M.D.
CHICAGO

The physician, as a rule, gives too little attention to the affairs of life outside his own line of work. Even when the matter is one that concerns him more or less directly, he seldom gives it sufficient thought or study to protect his own interests, and he often submits to injustice uncomplainingly rather than take the time and trouble to assert his rights.

This characteristic indifference of the profession is well known to legislative bodies, and as a result, when economic questions in which the physician should be interested are before these bodies for legislative action, the profession receives little or no consideration and, in fact, is often not even consulted. I need not now take the time to analyze the reason for this persistent indifference of the profession to matters of this kind, but will simply state that in many instances it has resulted in great detriment to the welfare of the people as a whole and to the medical profession in particular.

THE WASHINGTON WORKMEN'S COMPENSATION ACT

A good illustration of what amounts almost to contempt of the medical profession is shown in the first workmen's compensation act which was passed by the state of Washington in 1911. As is well known, workmen's compensation laws were enacted for the purpose of providing some compensation to workmen for injuries arising out of and in the course of their employment.

The first thing that an injured person needs in the way of compensation is medical attention for his injuries; but in the Washington act, not only was no provision made for paying a physician for his services to the injured, but many onerous duties were thrust on him which he was obliged to perform gratuitously. Naturally, the physician is the first person who is usually called when a workman is injured, and under the law he was required to make out an elaborate report of the case on blanks furnished for the purpose and send these to the industrial commission. On the blank form the following note was printed:

> This form should be made out and forwarded to the office of the commission in Olympia as soon as the surgeon has made such careful examination as will enable him to make an intelligent report of the case. No fee is paid for making out this blank, but the commission respectfully urges the cooperation of attending physicians in getting the real facts of each case before it. N. B. Your patient cannot receive any compensation from the state until this form is received and passed upon by the chief medical officer of the commission.

How gently the physician is sandbagged into making out his report for nothing: no report, no money for the injured workman—the inference, of course, being: no money for the patient, no money for the physician. When the patient was discharged by the surgeon, the surgeon was obliged to make out another elaborate report and send it to the office of the commission. In this report, in addition to other facts, the physician was required to state the cost of medical and surgical treatment, cost of medicine, medical and surgical supplies, cost of crutches and apparatus, hospital charges, ambulance charges, and cost of nursing. There was still another "form of surgeon's special report with charts," to be made out and sent to the commission; and finally, in case of death, the physician was obliged to fill out and file "form of proof of death by physician." In addition to his duty as a physician, the law stated:

> . . . and it shall be the duty of the physician to inform the injured workman of his rights under this act and to lend all the necessary assistance in making out his application for compensation and such proof of other matters as required by the rules of the department without charge to the workman.

Commenting on this last section, the industrial board naively remarked that what the physician does is simply a duty which he owes to the state; hence no payment is allowed therefor. The physician must not only take care of the injured workman, but under the act he was made the agent of the commission for the purpose of collecting and furnishing it with information, and was made the legal adviser of the injured workman and had to inform him of his rights under the act and "assist in making such proof of other matters as required by the rules of the department," for all of which services he was not only not allowed any compensation by the state, but was prohibited from making any charge to the workman for the simple reason that it was all a duty which he owed the state.

In order that physicians might not delay in performing their "duty to the state," the law provided that any person who fails to furnish the information and reports required by the commission shall be deemed guilty of a misdemeanor, the penalty for which is imprisonment in the county jail not to exceed ninety days or by fine not to exceed $250. This would certainly be amusing were it not a fact and were it not of such vital importance to the economic welfare of the profession. When did it become a "duty which the physician owes the state" to work for nothing? When did it become a duty of physicians to give legal advice to injured workmen and to assist them in making out their claims for compensation and to assist them in furnishing proof of such other matters as may be necessary, and all without recompense? It seems that in the state of Washington it was thought that the physician owed it to the state to work for nothing, and was encouraged to do it under a penalty of ninety days in the county jail or a fine of $250. If the physician is only meek and lowly enough he will soon have sufficient duties and obligations thrust on him by the state so that he will eventually be able to work his way into the state poorhouse. Such an absurd law as the Washington workmen's compensation act of 1911 never could have passed had the physicians been alert to their own welfare. It took some years to change that law so that the medical profession was given some consideration.

PRINCIPLE UNDERLYING WORKMEN'S COMPENSATION LAWS

While no other state has passed such a shameful workmen's compensation law as the Washington act of 1911, in the majority of the states the physician under workmen's compensation acts is meekly performing "the duty which he owes to the state" by caring for injured workmen for nothing. The fundamental principle underlying workmen's compensation acts is that the industry should bear as part of the cost of production the expense incident to injuries to workmen arising out of and in the course of their employment. In other words, the workman is to be looked on as a part of the general machinery of the industry and, like any other piece of machinery when injured, he should be repaired if possible, the cost of the repairs to be charged to general operating expense. The only difference between the human machine—the workman—and the inhuman machine is that the human machine loses his earning power while laid up during repairs, but must live at an expense to himself; hence he is allowed as part compensation a certain percentage of the wages he was earning when injured to tide him over until

he is again able to earn as before; or in case he is permanently incapacitated, until a predetermined amount has been paid to him.

It will be granted that the principle underlying workmen's compensation laws is sound. All state legislative bodies in enacting such laws recognize the principle that the burden of caring for accidental injuries to workmen arising out of and in the course of their employment is a legitimate expense of the industry chargeable to production. Such being the case, why is it that the majority of the workmen's compensation acts, which are based on the principle just announced, deliberately take a large part of the burden off the industry or the employer, and put it on the medical profession? Why should the medical profession, which has nothing to do with production, be compelled by law to assume a large part of the expense of caring for injured workmen, which expense, the same law announces on principle, should be borne by the industry or the employer? If the principle is correct, then the employer should pay all the expense and not a part of it while the physician pays the balance. How is it that the physician is obliged to assume without remuneration a large part of the expense of caring for injured workmen under workmen's compensation acts?

HOW IT WORKS OUT

In defining the amount and terms of the compensation to be paid, the acts state that the injured workmen shall receive medical and surgical care, including drugs, medicines and surgical appliances, hospital care and nursing, however, not to exceed $100, or $200, as some states have it. Any intelligent person knows that $100 or even $200 will not pay hospital and nursing bills and the expense of drugs, medicines and surgical dressings and appliances, and leave anything for the physician in a serious injury requiring one or more surgical operations and several weeks' careful attention. What happens is something like this:

A workman is injured, and a physician is called and told to do everything he can for the patient. It is necessary to have him removed to a hospital, and perhaps a serious operation must be performed, such as an amputation of a leg or, what even is more difficult, the repair of a bad compound fracture with the necessary subsequent care, etc. The hospital has its bills paid weekly, and after a time the physician sends in a bill, possibly, on account. He shortly receives a letter from the employer, who seems quite grieved to think that he should be sent a bill, for he has already paid the bills at the hospital, amounting to so and so much, which of course he thought included medical and surgical services. When informed to the contrary, he comes back with the statement that he has already paid all that the law requires, namely, $100 or $200, as the case may be, and has therefore discharged his liability and that the physician will have to look to the injured person for his bill. As the man is out of employment for many weeks or months on account of his injury; as the cash compensation which he received was barely sufficient to keep his family in food while he was laid up; as he is back in house rent and other necessary living expenses, and as he was working under the compensation act which he supposed paid for medical care when injured, the physician is left, as is said in the vernacular, "to hold the bag."

Another way in which some of these cases work out is this: A man is injured and the physician is called as before. When the bill is sent to the employer the physician is informed that the employer is insured in the X Y Z accident insurance company, to which the physician is referred. The insurance company asks the physician kindly to fill out numerous blanks giving all the details of the accident, the character and extent of the injuries, the duration of the disability, if any, etc., and when it has obtained all the free information it desires out of the physician it breaks the news to him that it has already paid hospital bills, etc., to the extent required by law and that it has no further liability in the case. Or if the insurance company cannot hide behind that technicality, it asks the physician for the amount of his bill so as to have it on record, and then informs the physician that the rules of the home office require that all doctors' bills be fully itemized, and that it will be necessary for him to itemize his bill, setting forth the exact charge made for first aid and for every subsequent attention and exactly what was done each time. When this is done the reply comes back that the company allows only so much for first aid, so much for this operation and that, and so much for subsequent care, etc., which fees are about 30 per cent. of what they should be for the work actually done, and the physician may accept that or not as he likes.

NEED OF COOPERATION BY PHYSICIANS TO SECURE JUSTICE

These are merely some of the ways physicians are carrying, without remuneration, a large part of the burden of workmen's compensation acts which should fall on the industries. And they will be obliged to submit to this imposition and to carry this burden, and others which seem imminent in the way of compulsory health insurance acts, unless they wake up and are willing to cooperate to secure common justice.

Medicolegal

Privilege as to Physician Employed Prior to Injury

(Hirschberg v. Southern Pac. Co. (Calif.), 183 Pac. R. 141)

The Supreme Court of California, in affirming a judgment in favor of the plaintiff, in this action to recover damages for personal injuries, holds that, under the statute with regard to privileged communications which was in force when the cause of action arose, the plaintiff did not, by testifying as to her injuries and by permitting a physician who treated her for them to testify regarding them, waive her privilege with reference to a physician who had treated her several years before her injury. The court says that it has been held that if a patient offers the testimony of one of several physicians attending the case at the same time, or who were present at a consultation, the privilege has been waived, so that the testimony of all of them will be received. Likewise, when different physicians have treated the patient at different times for the same injury and the patient calls one of the physicians to testify, it has been held that this constitutes a waiver as to all the physicians. But the court has found no authority supporting the contention in this case that because the plaintiff and her physician testified fully as to her condition after her injury, the ban of privilege was thereby waived as to information acquired by another physician while acting as her physician several years prior to the injury complained of. Nor does the court think that it ought to hold otherwise in this case than as stated, although the tendency of the decisions in recent years has been toward a less liberal application of the ban of privilege, and in California privilege in cases of damages for personal injuries has been abrogated since this cause of action arose (Statutes of 1917, p. 954).

Evidence of Violating Harrison Narcotic Law

(Thompson v. United States (U. S.), 258 Fed. R. 196)

The United States Circuit Court of Appeals, Eighth Circuit, in affirming a judgment of conviction of defendant Thompson of violating the Harrison Narcotic Law, says that a careful reading of the testimony was convincing beyond a doubt that the defendant, under the cloak of a practicing physician, sold narcotics, and not in the regular practice of

his profession for the purpose of curing addicts, and it was the duty of the trial court to submit the issues of fact to the jury, whose finding was conclusive in this court. It was assigned as error that physicians were permitted to testify as experts as to the well-recognized methods among the medical fraternity of treating persons addicted to the use of narcotic drugs for the purpose of curing them of the habit. Such evidence was admissible, but not conclusive. If physicians and the others mentioned in the exceptions of Section 2 can sell and dispense these narcotics, regardless of the fact whether it is done in good faith for the relief of a patient, then the moral object of the act is entirely defeated. It certainly cannot be claimed that a physician selling these narcotics, not in good faith, for the purpose of securing a cure of one suffering from an illness, or to cure him from the morphin habit, is doing so "in the course of his professional practice only," as prescribed by the express language of the act. For the purpose of establishing the intent and bad faith of the defendant, the testimony of other witnesses to having purchased narcotics from him, without his personally attending them, he sending the narcotics to them by express, they living in other states, was admissible. The defendant requested that the jury be instructed that under the act of Congress a physician cannot be convicted for dispensing the prohibited narcotics in the treatment of a patient, whose application is made by letter, and although the physician never comes into personal contact with such patient, provided he reduces the amount on each succeeding shipment of morphin, and furnishes it as in treatment for a morphin habit, in the course of professional practice only. But this requested instruction was in conflict with the act. It lacked two indispensable conditions: first, that the physician furnished the drug in good faith; and, second, that he made and kept the required record.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, New Orleans, April 26-30.

Air Service Medical Assn. of the U. S., New Orleans, April 26.
Alabama State Medical Association, Anniston, April 20-22.
American Association of Anatomists, Washington, D. C., April 1-3.
American Assn. of Pathologists and Bacteriologists, New York, April 2-3.
American Dermatological Association, Asheville, April 22-24.
American Proctologic Society, Memphis, Tenn., April 22-23.
American Radium Society, New Orleans, April 26.
American Urological Association, New York, March 23-25.
Assn. for Study of Internal Secretions, New Orleans, April 26.
Assn. of Amer. Teachers, Diseases of Children, New Orleans, April 27.
Assn. of Military Surgeons of the U. S., New Orleans, April 24.
Louisiana State Medical Society, New Orleans, April 24-26.
Missouri State Medical Association, Jefferson City, April 6-8.
National Tuberculosis Association, St. Louis, Mo., April 22-24.
New York State Medical Society, New York, March 23-25.
North Carolina State Medical Society, Charlotte, April 20.
South Carolina Medical Association, Greenville, April 20-21.
Tennessee State Medical Association, Chattanooga, April 6-8.
Texas State Medical Association, Houston, April 22-24.

NEW YORK ACADEMY OF MEDICINE

Stated Meeting, held Feb. 19, 1920

The President, DR. GEORGE DAVID STEWART, in the Chair

The Prevention and Serum Treatment of Lobar Pneumonia

DR. RUSSELL L. CECIL: The old theory was that most persons carry pneumococci in the upper respiratory tract, and that with lowered resistance autogenous infection occurs; more recent studies indicate that the normal mouth rarely harbors a virulent type of pneumococcus except when the person has been exposed to the disease, Types I, II and III being rarely found in healthy persons except among physicians and nurses who have been caring for some one with the disease. In the treatment of pneumonia, the patient should be isolated. Everything that has come in contact with him should be sterilized. Prophylactic vaccination may possibly offer more effective protection against pneumonia than is afforded by sanitary measures. Observations were made as to the value of prophylactic vaccination against Types I, II and III pneumonia at Camp Upton, where about 40 per cent. of the camp strength of 12,500 men were vaccinated and 60 per cent. remained unvaccinated. Those vaccinated received three injections of a pneumococcus saline vaccine of Types I, II and III, the first dose being 3 billion, the second 6 and the third 9 billion. The plan was to keep the men under observation for five or six months; but they departed at the end of ten weeks, during which time no case of pneumococcus Type I, II and III infection developed among the men who had received the three inoculations of the vaccine. There were only seventeen cases of pneumonia of all types among those receiving the vaccines, while there were 173 cases of pneumonia among the unvaccinated. Among the unvaccinated the mortality was 28 per cent., as against 11 per cent. among the vaccinated.

Further experiments at Camp Wheeler under somewhat different conditions, and with the use of a lipovaccine instead of the saline vaccine used at Camp Upton, indicated that the lipovaccines did not possess so great a degree of antigenic action as the saline vaccine. Here there were under observation about 16,000 men, 80 per cent. of whom were vaccinated against Types I, II and III pneumonia. Among the vaccinated there were thirty-two cases of pneumonia, and among the unvaccinated, forty-two cases. The mortality among the vaccinated was 21.7, and among the unvaccinated, 22.3. In connection with the use of the lipovaccines, it was found that the antibodies did not develop until a week after vaccination. A revision of their figures on this basis showed eight cases of pneumonia of the types vaccinated against.

Dr. Blake and I have conducted animal experiments at the Army Medical School at Washington with a view to confirming these results. The monkey is especially suited to such investigation, as it has pneumonia almost like man. When given large doses of the pneumococcus the monkey always died, and at necropsy the same kind of consolidation of the lung was found as in man. We were able to protect monkeys with vaccine made from living cultures of pneumococci, but with the killed cultures we have not been able to get a satisfactory immunity. When, however, large doses of killed culture were administered in three subcutaneous injections none of the monkeys thus protected by vaccination got pneumonia, but the controls did. Experiments on Philippine monkeys showed them much more susceptible than the rhesus monkey. Small doses of pneumococcus vaccine given intravenously to rhesus monkeys gave complete protection. These experiments gave a rational basis for human pneumococcus vaccination. The reactions following these injections were about the same as those following antityphoid inoculations, but larger doses were required. There is certainly indication for vaccination against pneumonia in the army, in recruiting stations, during epidemics of influenza, in institutions, and in outdoor workers. It is perhaps also indicated for nurses, physicians and hospital attendants exposed to pneumonia, and in persons subject to repeated attacks of pneumonia. Vaccination against pneumonia is contraindicated in those suffering from pulmonary tuberculosis and in acute respiratory infections. Type I antipneumococcus serum is effective against Type I pneumonia, and by its use in the work at the Rockefeller Institute the mortality of that type of pneumonia has been reduced from 30 to about 7 per cent. All the monkeys treated with Type I serum recovered, though they had been infected with lethal doses of Type I culture. The controls died. If serum was given early, the disease was practically aborted.

DISCUSSION

DR. FRANCIS G. BLAKE: This study of prophylactic vaccination in influenza and pneumonia offers great hope of supplying us with the means of preventing pneumonia, at least to a certain extent. These experiments have brought out three points very definitely: 1. The importance of beginning treatment early, a point which cannot be too strongly emphasized. The serum treatment should not be regarded as a last minute effort to rescue the patient from the grave, and that is the general rule in any disease treated by serum. 2. There should also be a great deal of enthusiasm in maintaining persistent treatment at least three times a day and

not desisting until the patient is well. 3. Even though, through unavoidable circumstances, treatment cannot be begun early, it should always be tried in the hope that severe cases may be saved as in the monkeys.

DR. HENRY T. CHICKERING: In the clinical study of pneumonia, Dochez and others have found that immune bodies and agglutinins last for only a short period; but these may not be the only index of immunity. It is important to emphasize the advantage of early use of the serum. If one is able to type the case within forty-eight hours of the chill and there are signs of incomplete consolidation, one or two treatments with the serum may be sufficient, whereas later on eight or ten treatments will be required. The time to get the sputum is at the first examination when, in attempts at deep breathing during percussion, coughing and expectoration are usually started. Treatment should be continued as long as the temperature is above 101 F. and one is certain it is not due to complications. There is an impression that empyema occurs more frequently in pneumonia cases treated with serum than in those not receiving this treatment, and it has been observed that empyema is rather infrequent in Type III pneumonia. The reason is that, in the severe cases of Type III pneumonias, death usually supervenes before the empyema stage is reached. When serum is used, more of the cases are saved and reach the empyema stage. In working with mice, it has been observed that there are certain maximum doses of pneumococci above which the serum exerts no effect. The same thing is probably shown in patients seen late when seventy-five or a hundred colonies of the pneumococci are found in the field, and in whom serum, even if given persistently, has no apparent effect, the patient dying either of pneumonia or of some complication.

DR. RUSSELL L. CECIL: My impression is that pneumococcus immunity lasts several months, and that it will be necessary to repeat vaccination every year in order to give protection during the season when pneumonia is prevalent. This is a subject we expect to investigate in the near future. There seems to be no relation between the degree of immunity and the amount of protective substance in the serum of the monkeys. An argument against the influenza bacillus as a cause of influenza is that it is difficult to obtain this organism by culture. We have found that with monkeys the influenza bacillus in some instances appeared and then suddenly disappeared, and that it spread rapidly from one part of the respiratory tract to another.

Relation of the Influenza Bacillus to Influenza

DR. FRANCIS G. BLAKE: None of the objections usually raised can be maintained as valid reasons for abandoning the conception of the possible etiologic importance of the Pfeiffer bacillus in relation to influenza, since it is well known that many bacteria whose etiologic relationships to various diseases affecting the respiratory tract is fully established may be found in the upper respiratory tract of healthy persons, and are often found in association with other pathologic conditions than those which they commonly cause. It has been thoroughly established that *B. influenzae*, at least certain strains of the organism, may be pathogenic for man, since it has been found as the only organism present in cases of meningitis, endocarditis, pneumonia and other conditions. That during the epidemic many laboratory examinations failed to show the presence of this organism is probably due to the fact that such examinations were carried out under the stress of war conditions, frequently without the use of adequate mediums or sufficient attention to the cultural peculiarities of the influenza bacillus. The failure to reproduce the disease in animals may be explained by the fact that in the majority of animal experiments reported in the literature, the methods of inoculation have been subcutaneous, intraperitoneal or intravenous, and it is not to be expected that a disease that may safely be classified as a respiratory infection could readily be reproduced in animals by the introduction of the virus by other than the natural mode of infection. That attempts to reproduce the disease by inoculation of the mucous membranes of the respiratory tract have been unsuccessful may be due to failure to take into consideration that such pathogenicity as the influenza bacillus possesses may be rapidly lost on artificial cultivation outside the animal body. Our experiments show that *B. influenzae*, when attention is paid to maintaining it at a proper grade of virulence, can initiate in healthy animals an infection of the mucous membranes of the upper respiratory tract which may spread by continuity to the lower respiratory tract, producing a tracheobronchitis and, in a certain proportion of the cases, a characteristic type of bronchopneumonia. Control experiments with highly virulent strains of pneumococci and hemolytic streptococci have shown that these organisms do not possess this property, and that they must gain admission to the bronchi before they can initiate an infection of the respiratory tract. The disease experimentally produced by inoculation of the nasal and buccal mucous membranes with *B. influenzae* was essentially identical with influenza in man with respect to its symptoms, clinical course and complications. *B. influenzae* can produce in animals a characteristic type of bronchopneumonia which is identical with the kind of pneumonia that has been described as typical influenzal bronchopneumonia of man and has been ascribed to infection of the lungs with *B. influenzae*. In short, *B. influenzae* can produce in animals the clinical syndrome of influenza. As harmonizing apparently opposing facts, I would suggest that the pandemic disease was primarily initiated by a yet undiscovered organism, and that there resulted under the influence of this virus a concomitant infection with *B. influenzae* which was responsible for the principal clinical manifestations of the disease influenza. Only future investigation can determine whether this assumption is correct.

DISCUSSION

DR. WILLIAM H. PARK: Four of our laboratory assistants at different times have been sprayed with fresh cultures of influenza bacilli accidentally. Two of these persons developed a moderate infection, and in both of these the type of culture which was sprayed into the nostrils was the type obtained during the infection and for many days afterward. The other two did not develop the infection, although one became a carrier for several weeks. Dr. Blake spoke of the fact that the early fulminating cases might show during the first day the Pfeiffer bacillus in pure culture or nearly pure culture, and later would show mainly the streptococcus, pneumococcus or other organisms. We have not found this always to be the case. Only a minority of our acute cases (20 per cent.) at death showed only influenza bacilli in the lungs. Dr. Williams and her associates have tried to find a filtrable virus, but with negative results. Inoculations in students of filtrates from nasal washings had also not produced infection. The simple finding of a filtrable virus in a few cases would, of course, prove nothing more as to the etiology of influenza than finding an unidentified new pathogenic microbe. It would still be necessary to prove that such a virus was the cause of the pandemic and not one of the complicating infections. One of the questions that must be considered in etiologic investigations is: "What are the marks of a case of epidemic influenza?" Dr. Williams has searched the cultures from over 100 cases but has not found the epidemic strain. When investigators have spoken of the significance of the Pfeiffer bacillus in 100 per cent. of the cases, they used the name in a very liberal way; they really meant that they had found very different types of the organism. These could not be from the same epidemic source. These findings supported strongly the belief that these persons were influenza bacillus carriers before they were attacked by influenza. Earlier investigations have always indicated this. The Pfeiffer bacillus has been found in virtually every case of whooping cough, in 90 per cent. of measles cases, and also in a large percentage of cases in other respiratory infections. In her search for the epidemic strain, Dr. Williams has taken cultures from separate groups and has isolated ten or twenty colonies from the cultures of each. In order not to miss the infecting strain, she selected those developing first on the plates, those developing later, and those developing last. She has picked out these colonies from the cultures from undoubted epidemic influenza; but instead of finding an epidemic strain, she found a multitude of types. These findings have convinced us that the Pfeiffer

bacillus has not been established as the cause of influenza, and have led us to believe that it was some other micro-organism. These experiments of Drs. Cecil and Blake have to my mind been very important in designating that lesions can be formed in monkeys by the Pfeiffer bacillus similar to those seen in the pneumonias occurring in influenzas.

DR. HANS ZINSSER: Drs. Cecil and Blake have, indeed, carried out Koch's postulate with the influenza bacillus and have produced lesions similar to those produced by this organism in some human cases, but the question as to whether the condition they have produced is true epidemic influenza or corresponds merely to a secondary condition analogous to pneumococcus and streptococcus lesions is still open. The conditions that Dr. Cecil and Dr. Blake produced in the monkeys' lungs, and the similar condition often spoken of as influenza at the present time, are not those seen in the cases of influenza during its early epidemic stages in France, and as I understand in this country as well, a condition characterized by rapid dissemination, sudden onset, violent headache, muscular pain and fever, but absence of respiratory or other local symptoms. It usually lasted three days, and all the patients recovered. Later, throat symptoms appeared; and in these, influenza bacilli were found. This was certainly not the disease that was seen later in the camps in this country and is being seen in the hospitals, associated with the pneumococcus or the hemolytic or other streptococcus. It is difficult to understand why a patient should be so terribly ill with nothing but a small focus of influenza bacilli in the throat; this can be explained only on the basis of the production of a poison by the organisms comparable to exotoxins of other bacteria. Recent work in the Columbia Medical School laboratory by Mrs. Parker shows that the influenza bacilli produce powerful poisons in the early stage of their growth in liquid mediums, which are toxic for rabbits. Just what these poisons are is not yet clear to us; but it is not impossible that they may actually be formed in the body, and would account for severe symptoms accompanying the localized infections. At Dr. Longcope's clinic we are beginning to examine convalescent patients by complement fixation with influenza bacilli. A great many of them seem to have shown complement fixation with various antigens, but the work is just beginning and it is very difficult to obtain serums from any one at present and be sure that they are normal. The work of Drs. Cecil and Blake has made it seem somewhat more likely that the influenza bacillus is responsible for what is commonly spoken of as influenza, but it does not bring positive proof of this particular phase of the problem; and while I am inclined to favor the etiologic significance of the influenza bacillus, final judgment must be withheld until some of the apparently contradictory points of evidence have been more thoroughly cleared up.

DR. FRANCIS G. BLAKE: The point to be emphasized is that although we can produce pneumonia by the influenza bacillus, this bacillus was able to initiate an infection of the upper respiratory tract which seemed the same as the type that appeared in the spring of 1918. I saw a great deal of that type at Fort Sam Houston, and believe it was the same as the type they were having in France. Is it not possible that a number of strains of the influenza bacillus were responsible for the epidemic? In an epidemic of pneumonia among monkeys, at least four types of the pneumococcus were concerned.

Treatment of Influenza

DR. SAMUEL A. BROWN: In the treatment of influenza, toxicity is the factor to be kept in mind from the beginning of the disease to the very end. Treatment must be directed first toward the destruction of the invading organism locally and generally. All cases, though very mild, should be regarded seriously. The treatment should consist of rest in bed, a cathartic, and local treatment of the nasal and respiratory mucous membranes with alkaline irrigations and a solution of argyrol or other preparation of silver. Of the drugs of value in the constitutional treatment, the preparations of quinin stand out as fundamentally the nearest to a specific which we have, though we are entirely unable to prove its destructive power on the specific bacteria. Quinin should be given in 2 or 3 grain doses every two or three hours until there is evidence of cinchonism. In addition, phenacetin for the control of pain, headache and temperature, small doses of codein for control of the cough and salicylates as analgesics may be given as required. Another plan of treatment in which there is dryness of the skin, cough and restlessness consists in the administration of Dover's powder, 3 grains, and 3 grains of quinin every three or four hours. The former plan seems preferable. It is important to increase elimination by the ingestion of alkaline waters and by means of high colonic irrigations. The depression associated with the end of the active stage should be counteracted in the beginning by moderate alcoholic stimulation and forced feeding. The treatment during the convalescent stage is most important and often neglected. Associated with the use of quinin, camphor may be used hypodermically. During convalescence the hypodermic administration of strychnin or arsenic on alternate days should be prescribed, together with absolute rest and stimulating massage. In recent prescribing many have omitted to use some of the old-fashioned preparations which have been useful for generations and which are just as useful today if selectively applied.

DISCUSSION

DR. HUBERT V. GUILE: Influenza is of such short duration, and the outcome is so invariably favorable, that it is difficult to say just how much the results are due to treatment and how much to the patient's own immunity. One is almost justified in regarding any case of influenza that has persisted more than five days as more than likely to have developed pneumonia. Here, again, with the exception of pneumonia of Type I, the treatment is purely symptomatic. At present I fear the great bulk of treatment in pneumonia is directed to the prevention of circulatory and heart failure when it is by no means certain that this is a frequent cause of death. Haldane has recently brought to notice the importance of the administration of oxygen inhalations in the treatment of anoxemia, which he defines as a condition in which the rate of supply of oxygen to the tissues by the blood in the systemic capillaries is insufficient for the normal processes of life. This he maintains is a common situation in the bronchopneumonias of the so-called influenzal type. Another procedure that has proved useful, the result of our experience abroad, is the use of intravenous hypertonic glucose solution. This seemed to be of distinct value in the critically ill presenting marked toxic symptoms, its beneficial effects being attributed to the restoration of dehydrated tissues, to its slight caloric value, and to its possible tonic effect on the heart muscle. Nonspecific protein therapy has been applied in bronchopneumonia, and seems to promise some assistance along these lines. The same statement holds true of passive immunity obtained by the use of the serum of convalescent patients. Lumbar puncture is occasionally of value in delirious patients, and is of value in ruling out the possibility of meningeal involvement. For emergency stimulation in pneumonia, camphor and caffein in my experience are most efficient, with epinephrin if the blood pressure is unduly low. Pituitary extract has been useful in combating tympanites. The patient should, of course, be digitalized early in the course of the disease.

Obstetric Teaching Hospitals in London.—By all means let the small number of hospitals which can do so enlarge their existing accommodation for maternity cases and at the same time take steps to improve their teaching, which at present is admittedly defective; but the total number of beds which these hospitals will be able to set aside for midwifery will be quite inadequate to fill the demand. It would be suicidal for all the medical schools of London to try to esablish maternity wards with a sufficient number of beds; this should be attempted by not more than three or four schools and the students of the other schools should obtain their clinical instruction either at one of the schools furnished with a maternity ward, or, better, at one of the new and large midwifery institutions, of which at least half a dozen will be required in the different areas of London.—*Lancet*, Dec. 13, 1919.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Review of Tuberculosis, Baltimore

January, 1920, **3**, No. 11

*Occult Tuberculosis. H. Sewall, Denver.—p. 665.
*Serologic Studies on Tuberculosis. Complement Fixation. S. A. Petroff, Trudeau, N. Y.—p. 683.
*Early Roentgen Ray Diagnosis of Ulcerative Tuberculous Colitis. L. Brown and H. L. Sampson, Trudeau, N. Y.—p. 698.

Occult Tuberculosis.—A large group of patients suffer symptoms from a tuberculous infection which is nonprogressive. The symptoms are caused by a subtle intoxication which undermines the functional powers and coordination of all vital tissues. This condition Sewall terms "occult tuberculosis." The patients, as a rule, are not definitely sick. There is a general functional insufficiency with lack of staying power that is brought out by slight physical strain. Neuralgic pains, headache, dizziness, undue fatigue and nervousness are common symptoms. In women, menstruation is apt to be scanty, or is frequently missed. The temperature is usually not elevated but may rise slightly after exercise. The lungs are rarely suspected, but they give auscultatory and roentgen-ray evidences of slight sclerosis involving, especially, the hilum lymph nodes and the upper bronchial radiations. The symptoms may often be traced to circulatory or hormonic insufficiency. Many of these patients, Sewall says, have probably been classified under the title of "effort syndrome" or "neurocirculatory asthenia." The most valuable objective sign of occult tuberculosis is the reaction of the blood pressure to slight strain, such as changing from the supine to the erect position. Most of these patients have vascular hypotension but the most significant feature is an abnormal lowering of pulse pressure and its tendency to progressive subsidence when the erect posture is assumed. This may be due to inordinate fall of systolic pressure or to rise of diastolic pressure in the upright as compared with the recumbent position. This pressure change is not specific of occult tuberculosis, but after exclusion of focal infection, it should suggest this condition and lead to the application of diagnostic methods.

Complement Fixation in Tuberculosis.—Petroff reviews a number of antigens that have been employed and discusses their nature and chemical composition. He has isolated substances corresponding to lecithin, kephalin, sphyngomyelin, carnithin and cuorin from tubercle bacilli, and compared their antigenic properties with those of various tuberculoproteins. Lipins are anticomplementary in large doses, and have no antigenic properties in small doses. Proteins do not give as strong reactions as proteins combined with lipins. The primary incubation time is very important and from one and one-half to two hours is best. Complement fixing antibodies are probably globulins or substances absorbed with the globulins. To get satisfactory results, it is important to have a proper hydrogen ion concentration of the salt solution, to have the glassware thoroughly cleaned and to incubate at a temperature of between 35 and 40 C. Petroff claims that the test in tuberculosis is more specific than the Wassermann test in syphilis.

Roentgen-Ray Diagnosis of Tuberculous Colitis.—According to Brown and Sampson, the clinical picture in the early latent stages of tuberculous colitis contributes little to diagnosis. However, certain roentgen-ray shadows seen from six to twenty-four hours after a barium meal show definitely the presence of colonic ulceration, although their absence does not exclude it. They also show hypermotility and spasm of filling defects, and such a picture in a patient with pulmonary tuberculosis should lead to a definite diagnosis of colonic tuberculosis. The condition is far more frequent than has been hitherto taught, and must be excluded in all advanced as well as early cases with abdonimal symptoms, before submitting them to radical treatment. No examination of a patient with pulmonary tuberculosis can be considered complete without a roentgen-ray study of the intestines.

Boston Medical and Surgical Journal

Feb. 19, 1920, **182**, No. 8

Bodily Mechanics and Nutrition. L. T. Brown, Boston.—p. 187.
Illegitimacy from Standpoint of Physician. F. S. Keller, Boston.—p. 191.
Report of Neurologic Sequels of Influenza in Boston City Hospital Neurological Outpatient Department from July, 1918, to July, 1919. M. D. Ordway, Boston.—p. 194.
*Placental Tumor. R. D. Margeson, Boston.—p. 200.
*Rupture of Pectoralis Minor Muscle. W. P. Coues, Boston.—p. 200.

Placental Tumor.—Margeson reports what he believes to have been an angioma of the placenta. The tumor measured 10 by 6 by 3 cm. and was completely surrounded by amniotic membrane, being attached to the placenta by a structure similar to the umbilical cord, containing vessels, and measuring 6 cm., thus differing from a succinturiata by having no uterine attachment. The specimen was destroyed by mistake before a microscopic examination could be made.

Rupture of Pectoralis Minor Muscle.—While lifting on a tackle and falls with the left arm high in the air, Coues' patient gave a quick jerk on the rope and felt a sudden severe pain above the nipple of the left breast. The load was between 800 and 900 pounds. The patient complained of pain about the left breast on attempting to use his arm since that time, eight months ago. The region of the left breast was distinctly more prominent than the right. There was a diffuse globular swelling under the breast, extending from the anterior border of the axilla to just above the nipple line. The mass was soft, doughlike and somewhat tender to direct pressure. It was most marked near the axillary line. Its general shape was somewhat that of a cucumber. Elevation of the shoulder was possible but painful. Adduction of the arm caused distinct pain in the pectoral region. The grip of both hands was equal and strong. There was no disturbance of sensation of hand, forearm or shoulder. There was no atrophy. The greater pectoral muscle was very well developed, and seemed to be functionating perfectly well. The nature of the injury and appearance of the soft tumor mass in the direct position of the lesser pectoral muscle, would seem to make the diagnosis of this unusual injury fairly certain.

California State Journal of Medicine, San Francisco

Februry, 1920, **18**, No. 2

Botulism. E. C. Dickson, San Francisco.—p. 40.
*Pneumoperitoneum: Roentgenographic Study of Abdominal Organs After Inflation of Peritoneal Cavity. W. A. Alvarez, San Francisco.—p. 42.
Practitioner's Contribution to Embryology. A. W. Meyer, Palo Alto.—p. 44.
Problem of Uterine Cancer. F. W. Lynch, San Francisco.—p. 47.
*Refinement of Colorimetric Methods; Indigocarmine as Functional Test. G. G. Reinle and E. S. DePuy, San Francisco.—p. 49.

Pneumoperitoneum.—According to Alvarez, the first one to show roentgenograms taken after injecting air into the abdomen of a patient who had been tapped for ascites was Lorey in 1912. Weber began to work out this technic on animals and cadavers in 1912. The harmlessness of this procedure in suitable cases seems to have been well established, as no accidents have been reported from the clinics in which it has been used extensively. Rabbits and guinea-pigs can be distended with oxygen or carbon dioxid to a degree not approachable in man, without producing any signs of distress or concern. The rapid absorption of these large quantities of gas does not bother their respiratory centers. Alvarez is convinced that this is the biggest advance in roentgenologic technic since the introduction of the bismuth meal by Cannon, in 1898.

Indigocarmin as a Functional Test.—Two standards are used by Reinle and DePuy in each determination: (1) a standard aqueous phenolsulphonephthalein, 0.006 to 1,000; (2) a standard dark amber urine phenolsulphonephthalein, 0.006 to 1,000. By a dilution of the urine standard with the water standard, a separate standard was established in each case, and that standard was compared with the urine under investigation. In one of the parallel tubes to the colorimeter the patient's urine, diluted to some multiple of 1,000, is brought up to the 10 c.c. mark. In the opposite tube is

placed 4 or 5 c.c. of either of the standards. A glance shows whether there is too much or too little yellow coloring matter, and either the aqueous standard or the urine standard is added until an exact match is obtained. The whole process is said to occupy probably five minutes, and is so easily accomplished that the test can be performed by any trained attendant. Having solved the problem of actually matching colors, which the authors are able to do within 0.5 per cent., they then check their findings with reflected light against the findings of transmitted light. The authors use indigocarmin instead of phenolsulphonephthalein. The amplified indigocarmin test is not offered as in any wise a substitute for the phenolsulphonephthalein test, except under conditions where the latter cannot be used, but it is proposed as either an alternative test or as a supplementary test when urine is uncontaminated by blood.

Georgia Medical Association Journal, Atlanta

December, 1919, **9**, No. 8

What the Public Should Know About Cancer. J. L. Campbell, Atlanta.—p. 1.
Treatment of Gunshot Wounds of Abdomen. M. C. Pruitt, Atlanta.—p. 5.
Degenerative Diseases: The Most Formidable Foe of Human Life. O. M. Hayward, Reeves.—p. 9.
Radium in Uterine Cancer and Other Gynecologic Conditions. C. C. Harrold, Macon.—p. 14.
Present Status of Meningococcic Infection. A. H. Bunce, Atlanta.—p. 16.

Illinois Medical Journal, Oak Park, Ill.

February, 1920, **37**, No. 2

Report on Otolaryngologic Features of Influenza at Camp Hancock, Ga., September-December, 1918. G. Fetterholf, Philadelphia, and W. J. Rideout, Freeport, Ill.—p. 77.
Spasmophilia. J. W. Van Derslice, Oak Park.—p. 82.
Influenza and Its Relation to Septic Laryngitis. C. H. Long, Chicago.—p. 85.
Acute Mastoiditis. R. J. Tivnen Chicago.—p. 87.
Diagnosis and Treatment of Gastric and Duodenal Ulcers. E. F. Stevenson, Waterloo, Iowa.—p. 96.
Early Recognition and Treatment of Intussusception. C. S. Krause, Cedar Rapids, Iowa.—p. 98.
Typhoid and Paratyphoid in Vaccinated Troops; Report of Twenty-Five Cases in Army of Occupation. L. Unger, Chicago.—p. 101.
Typhoid Fever at Moline. M. C. Sjoblom, Springfield.—p. 103.
General Health Activities and Their Effect in Tuberculosis. G. T. Palmer, Springfield.—p. 106.
Tuberculosis Infection in Relation to Public Health. W. B. Metcalf, Chicago.—p. 111.
Hyperesthetic Ethmoiditis. H. L. Pollock, Chicago.—p. 113.
Definite Treatment of Pneumonias; Treatment of Influenza. S. S. Cohen, Philadelphia.—p. 117.
Oral Foci of Infection from Dentist's Standpoint. H. H. Schumann, Chicago.—p. 119.

Journal of Mental and Nervous Diseases, Lancaster, Pa.

January, 1920, **51**, No. 1

Tonus of Autonomic Segments as Causes of Abnormal Behavior. E. J. Kempf, Washington, D. C.—p. 1.
Paranoid Psychoses. K. A. Menninger, Topeka, Kan.—p. 35.
*Dilatation of Lateral Ventricle as Common Brain Lesion in Epilepsy. D. A. Thom, Palmer, Mass.—p. 41.

Dilatation of Lateral Ventricle in Epilepsy.—The brains of seventy-five epileptics were examined postmortem by Thom. Fifty-seven of these specimens presented gross brain lesions; thirty-one presented cortical lesions as well as dilated ventricles; sixteen presented lesions of the cortex alone, while fourteen, with normal appearing cortex, presented dilated lateral ventricles. Of the whole number of forty-three brains presenting cortical lesions, the hind portion of the brain was by far the most frequently affected, especially the occipital lobes. The convolutional shrinkage in this region was often marked on the brains so that the condition was acquired rather than of congenital origin. Next in order of frequency was the general cerebral gliosis, where the entire cerebellum appeared to be involved. Softenings were noted only six times, once being general and five times focalized. In only two cases of the seventy-five was there evidence of arterial rupture. Gliosis and atrophy of one hemisphere alone was noted in eight cases of the forty-one with dilated ventricle; twenty-seven brains presented abnormalities of the cortex; in fourteen instances the cortex was not grossly abnormal but the ventricular dilatation was of such a degree as to leave no doubt of its abnormality, thus raising the question whether the lesions affecting primarily the white matter can be a factor in the production of epilepsy.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

December, 1919, **14**, No. 4

*Active Principles of Pituitary Gland. H. W. Dudley, London, England.—p. 295.
*Perfusion of Medulla of Turtle with Atropin, Caffein and Strychnin. A. D. Bush, Columbia, Mo.—p. 313.
*Comparative Toxicity of Local Anesthetics and of Antipyretics for Earthworms. T. Sollmann, Cleveland.—p. 319.
*Anthelmintic Action of Benzyl Alcohol and Benzyl Esters. D. I. Macht, Baltimore.—p. 323.
Modification of Action of Epinephrin on Heart by Morphin. W. J. R. Heinekamp, Chicago.—p. 327.
*Action of Curara on Output of Epinephrin from Suprarenals. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 343.
Cocain Intoxication in Rabbit. C. A. Mills, Cincinnati.—p. 355.

Active Principles of Pituitary Gland.—A method of preparing crystalline residues, very active physiologically, from extracts of the posterior lobe of the pituitary gland is described by Dudley. It consists in extraction of the dried and powdered infundibulum with acidulated water, treatment of the solution with colloidal ferric hydroxid and subsequent continuous extraction of the filtrate with butyl alcohol at reduced pressure. This extract yields a crystalline residue which contains all the uterine stimulant, together with some of the pressor principle and contaminating substances. Dudley claims the uterine stimulant and histamin are not identical, as suggested by Abel and Kubota, but are two distinct chemical substances. The only point of similarity observed is that both are readily extracted from alkaline solution by butyl alcohol. The pituitary uterine stimulant is more readily extracted from acid solution than the pressor principle.

Perfusion of Medulla of Turtle.—The experiments reported by Bush seem to indicate that on the isolated medulla of the striped turtle, atropin, 0.02 per cent., and caffein, 0.04 per cent., exert little or no registrable influence; whereas strychnin, 0.0033 per cent. produces a prompt, though temporary, stimulation of the cardio-inhibitory center.

Comparative Toxicity of Local Anesthetics and of Antipyretics for Earthworms.—The investigation made by Sollmann furnishes data of the toxic concentrations of local anesthetics and of antipyretics for earthworms. These are not paralleled to the toxicity for mammals, since the mechanism of the fatal effects is different.

Anthelmintic Action of Benzyl Alcohol and Benzyl Esters.—Experiments were made by Macht on both earthworms and roundworms of the pig with benzyl alcohol, benzaldehyd, benzyl acetate and benzyl benzoate. It was found that all of these drugs exerted a toxic effect on the worms but not in the same degree. The least effective was benzyl benzoate. Its weak action, however, must be for the most part due to its poor solubility and penertating power. Benzyl alcohol was found to be the most powerful anthelmintic of the drugs studied. A 0.5 per cent. solution of it, and even weaker solutions, killed earthworms rapidly. Benzaldehyd came next in its efficiency and benzyl acetate was third.

Action of Curara on Output of Epinephrin from Suprarenals.—Stewart and Rogoff found the curara in doses sufficient to paralize the skeletal muscles in the cat markedly depresses the output of epinephrin from the suprarenals. The depression begins promptly and may be still well marked when paralysis of the muscles has begun to wear off. While no attempt was made to compare exactly the doses required to paralyse the epinephrin secretory fibers and the cardio-inhibitory fibers, a marked diminution in the epinephrin output was observed in samples of blood collected from the suprarenals at a time when stimulation of the vagus caused inhibition of the heart.

Kentucky Medical Journal, Bowling Green

February, 1920, **18**, No. 2

Extensive Carbuncle of Neck. J. G. Sherrill, Louisville.—p. 38.
Value of Neuropsychiatric Examination in Certain Obscure Cases of Internal Medicine and Surgery. B. L. Jones, Detroit.—p. 40.

Medical Record, New York

Jan. 31, 1920, **97**, No. 5

Epidemic of Influenza Occurring in the U. S. Naval Hospitals in Philadelphia in 1918. J. Daland, Philadelphia.—p. 173.
Dispensary Situation in New York City. E. H. Lewinski-Corwin, New York.—p. 180.
Barbarous Custom of Smoking. W. A. Bloedorn, M. C., U. S. Navy.—p. 185.
*Unusual Symptoms and Signs Observed in the Last Influenza Epidemic. D. Greenberg, New York.—p. 188.
*New Method of Treating Remote Manifestations of Gonorrheal Infections. M. Stern and I. S. Ridler, New York.—p. 190.

Unusual Symptoms and Signs Observed in Last Influenza Epidemic.—The cases cited by Greenberg were: influenza with intestinal hemorrhages; influenza with onset of hematemesis; influenza followed by acidosis and toxic vomiting; influenza with acute nephritis and suppression of urine in a patient suffering from pulmonary stenosis and paroxysmal tachycardia (auricular fibrillation).

New Method of Treating Remote Manifestations of Gonorrheal Infections.—For nearly one year, Stern has been treating all cases of arthritis with intravenous injections of 20 c.c. of a solution of sodium iodid, 2 gm. in 20 c.c. of water. This treatment was repeated every four days. After having treated ten arthritis patients with extraordinary results, intravenous injection of sodium iodid was resorted to in cases of acute orchitis, with rapid subsidence of the acute symptoms. Prostatic infections also behaved in a manner quite different from that which Stern had been accustomed to seeing. By thus extending the field of application of this treatment he now has records of 100 patients discharged germ free and apparently cured, though no follow-up system was possible.

Feb. 7, 1920, **97**, No. 6

Bronchoscopic Treatment of Bronchiectasis and Pulmonary Abscess. H. L. Lynah, New York.—p. 215.
Dilatation and Plication of Caput Coli. D. H. Stewart, New York.—p. 218.
Angioma of Stomach. W. S. Lemon, Rochester, Minn.—p. 220.
*Case of Congenital Total Hemihypertrophy. H. R. Coston, Birmingham.—p. 222.
Amaurotic Family Idiocy or Infantile Amaurotic Idiocy. J. Epstein, New York.—p. 224.
*Desirability of Instituting a Special Medical Board Which Should Correspond to the Patent Office. A. L. Soresi, New York.—p. 227.
Anesthesia in Cerebral and Spinal Surgery. A. M. Palermo, New York.—p. 231.
Wine in François Rabelais' Day. D. W. Montgomery, San Francisco.—p. 233.
Influenza; Confirmatory Report on Abortive Action of Quinin Dihydrochlorid. W. F. and E. C. Burrows, New York.—p. 235.

Case of Congenital Total Hemihypertrophy.—Coston's patient was 22 months old, the fourth child of healthy parents of rather low mentality. The other three children were normal and healthy, and mentally above their parents. This one had never been sick, and seemingly was of good mentality. The mother was well during the pregnancy. There is no history of defective development in any member of the family, except a second cousin of this child's on the mother's side, who has six toes on his right foot. This child was born after a very quick and easy labor. It was observed immediately on his birth that one side was much larger than the other. This involved the whole left side from the crown of the head to the soles of the feet.

Special Medical Board, Corresponding to Patent Office.—Soresi's idea is that the function of this medical board should be to establish and protect the priority of ideas relating to medical subjects.

Philippine Journal of Science, Manila

July, 1919, **15**, No. 1

Philippine Bees of Genus Noami. T. D. A. Cockerell.—p. 1.
Metallic Colored Halicitine Bees of Philippine Islands. T. D. A. Cockerell.—p. 9.
New Records and Species of Philippine Membracidae. W. D. Funkhouser.—p. 15.
Osteologic and Other Notes on the Monkey Eating Eagle of Philippines, Pithecophaga Jefferyi Grant. R. W. Shufeldt.—p. 31.
General Facts in Biology of Philippine Mound Building Termites. L. B. Uichanco.—p. 59.
Malayan Machaerotine (Cercopidae). C. F. Baker.—p. 67.
Habits of Tropical Crustacea: III. R. P. Cowles.—p. 81.
Milk Produced in Southern China. C. O. Levine.—p 91.
Analysis of Portland Cement Raw Mixture. J. C. Witt.—p. 107.

Milk Produced in Southern China.—Three classes of milk animals were studied by Levine: European cattle, the native water buffalo (known in the Philippine Islands as carabao) and the native humped cattle. The work has been done chiefly in the vicinities of Canton and Hongkong, the only regions in Kwangtung (which is the southernmost province in China) where dairying has yet developed into an industry of any extent. The milk of the Canton buffalo contains nearly four times as much fat as the European cow, twice as much protein, but only two thirds as much sugar. The ash content is about the same; the water content is slightly less. The food value of the milk of the water buffalo was discussed fully in an article by Cadbury, published in the *American Journal of Diseases of Children*, January, 1920, and abstracted in THE JOURNAL, Jan. 17, 1920, p. 202.

Southern Medical Journal, Birmingham, Ala.

February, 1920, **13**, No. 2

Focal Infection. T. D. Coleman, Augusta.—p. 79.
*Subacute Combined Degeneration of Spinal Cord. W. G. Somerville, Memphis.—p. 84.
*Three Cases of Spinal Muscular Atrophy Probably of Werdnig-Hoffman Type. J. H. M. Knox, Jr., and G. F. Powers, Baltimore.—p. 86.
*Infectious Meteorism. M. Einhorn, New York.—p. 92.
An Improved Stomach Tube. G. C. Mizell, Atlanta.—p. 96.
State Department of Health and Child Welfare Problem of South. E. A. Hines, Seneca.—p. 98.
*Uncinariasis and Manifest Tuberculosis. R. D. Adams, Washington.—p. 105.
Treatment of Acute Abdomen. J. P. Runyan, Little Rock.—p. 110.
Plastic Surgery of Face. E. D. Highsmith, Atlanta.—p. 113.
Urologic Treatment of Vesicovaginal Fistula. J. R. Caulk, St. Louis.—p. 116.
Ureteral Stones. E. P. Merritt, Atlanta.—p. 118.
*New Uses of Scrotum. J. E. Johnson, Memphis.—p. 120.
Pruritus Ani. E. H. Terrell, Richmond.—p. 123.
Interpreting Muscular Imbalance. H. Woods, Baltimore.—p. 126.
Two Cases of Eye Inflammation Due to Infected Teeth. C. M. Miller, Richmond.—p. 132.
Relation of Medical Education to Group Medicine. S. R. Roberts, Atlanta.—p. 136.
National Board of Medical Examiners. L. A. LaGarde, Washington, D. C.—p. 138.
National Board of Medical Examiners. J. S. Rodman, Philadelphia.—p. 140.

Subacute Combined Degeneration of Spinal Cord.—Under this heading Somerville cites a case of anemia and a combined degeneration of the posterior and lateral columns of the cord, running a fairly acute or subacute course. The patient was a woman, aged 55 years. Her trouble began insidiously fifteen months previously, with numbness and tingling in the feet and legs, which has gradually extended up above the umbilicus. Recently, there developed numbness and tingling of the hands and wrists, weakness of the lower extremities and a rather marked ataxia; some difficulty in voiding urine, but no retention nor incontinence. She complained of a sensation in the lower extremities as if they were tightly bound with bandages. She had had intestinal attacks with some rise of temperature at intervals of every few weeks. Her color was pale and sallow; heart and lungs were negative. Hemoglobin was 63 per cent.; red blood corpuscles numbered 2,300,000, with slight variation in size, but no nucleated cells. In every stool examined there was found the *Cercomonas intestinalis*. Somerville calls attention to the very great importance of examination of the intestinal discharges of these patients, because of the possibility that the symptoms are produced by an intestinal parasite.

Spinal Muscular Atrophy Probably of Werdnig-Hoffman Type.—Knox and Powers report three cases occurring in one family, one boy and two girls, aged 14 months, 6 weeks and 3 months, respectively. The authors incline to the belief that the symptoms in these three cases, namely general symmetrical muscular weakness, noted at birth, with loss of reflexes and diminution in response to electrical stimulation, can be explained most satisfactorily on the assumption of a primary spinal atrophy and secondary muscular involvement, although the possibility of a reverse process cannot be excluded. The third patient, who is still living, has apparently improved somewhat, which is accounted for by the development of certain intact and enervated muscle fibers.

It would seem to the authors, from a consideration of the growing literature, that many transitional cases do occur between the group of cases described as amyotonia congenita (Oppenheim) and those of infantile spinal muscular atrophy (Werdnig-Hoffman); that both these conditions may be due to a congenital defect in development of the lower motor neuron tract, affecting both certain ganglion cells of the cord and the muscles they supply. In general, it is true that the cases of amyotonia congenita represent the less intense and progressive involvement.

Infectious Meteorism.—In the two cases cited by Einhorn a laparatomy was performed. There existed no mechanical obstruction along the digestive tract. The small intestine in parts and the entire colon were filled with gas, and the peritoneal covering of these organs looked glittering and reddish, showing the presence of peritonitis. Both patients died soon after the operation. The disease, appearing in both patients in an acute form with the accompaniment of fever, suggested an infection (probably bacterial) as its cause. Einhorn also cites one case in which this condition followed an attack of influenza. Treatment should be directed toward combating the infection and relieving the bowel difficulty. Absolute rest, flushing of the system with water, and relieving the digestive tract of accumulated gas and stagnant contents are the main aims to be accomplished.

Uncinariasis and Manifest Tuberculosis.—In forty-six cases of suspected tuberculosis, Adams failed to find any evidence justifying the diagnosis of tuberculosis but established the presence of existing infection with hookworm in thirty-two cases, and developed clear histories of previous infections of considerable severity in the remaining fourteen cases. The provisional diagnosis had been made in each instance chiefly because of the presence of adventitious sounds over the upper chest. Investigation disclosed the entire absence of râles and demonstrated the presence of joint sounds ranging from coarse grating to fine crepitations, the latter distinguished only with difficulty from true râles. The majority of these sounds are to be heard over the sternocostal articulations and are transmitted out to the ribs, especially in the vicinity of the clavicle. A comparative study, on one hand, of 100 individuals with clinical evidence of uncinariasis, and of 100 normal subjects, on the other, showed a preponderance of confusing crepitations of about three to one in favor of the former. In old cases of hookworm infection the adventitious joint sounds are not confined to the shoulder girdle and adjacent parts, but are to be heard over several or many of the articulations. In Adams' opinion there is no evidence establishing any specific relationship between the two diseases, and, he says, inasmuch as it has been demonstrated that the mortality from tuberculosis may be reduced by a measure so simple as elimination of hookworm where double infection exists, the obligation of the physician with regard to diagnosis and treatment is apparent.

New Uses of Scrotum.—Two cases are reported by Johnson in which an excess of scrotum was used to advantage in relieving two conditions which have not yielded always to the usual treatments. The first case was one of intractable pruritus ani, in which the skin of the involved area had to be removed. A pendulous scrotum was used to supply the defect. The second case was one of lymphedema of the leg following an operation for right inguinal adenitis. During the operation, which had been performed about six months before, the saphenous vein was injured and the hemorrhage was controlled by sutures en masse. There was an obstruction of the lymph return through the right inguinal lymphatics. The leg did not recede to normal when elevated. The scrotum was not edematous. As the return lymph could not go through the right groin, the problem was to find another course. Finding an unusually long scrotum, Johnson decided to use the entire left side of the scrotum with its subcutaneous tissues and lymphatic channels as a tissue flap below the obstructed area, with the idea of carrying the lymph, which normally returns through the right groin, through the left groin. At the end of two months the edema was entirely relieved.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

January, 1920, **14**, No. 1

Some Aspects of Tuberculosis Problem in Life Assurance. O. May.—p. 1.
*Roentgen Rays in Early Diagnosis of Pulmonary Tuberculosis. M. Berry.—p. 12.
Reformation in Sanatorium Management. G. B. Roatta.—p. 16.
Next Stage in Tuberculosis Movement: A Criticism and a Suggestion. W. M. Crofton.—p. 19.
City of Liverpool Sanatorium for Tuberculosis at Fazakerley. V. Hooper.—p. 25.

Diminution of Diaphragm Movement in Tuberculosis of Lungs.—Air entry into the lung is dependent on diaphragmatic and costal movements, hence any diminution in these movements will give rise on the fluorescent screen to diminution of the difference in illumination between inspiration and expiration, and on percussion to the difference in the notes obtained during these two phases of respiration. Berry claims to have seen this many times. Therefore, he regards the use of the roentgen ray as of value in the early diagnosis of pulmonary tuberculosis because this functional derangement of the diaphragm may be seen before there is any evidence of organic change. The same observation has also been made by others.

British Medical Journal, London

Jan. 31, 1920, **1**, No. 3083

Psychopathology and Dissociation. W. Brown.—p. 139.
*Importance of House Fly as Carrier of Endamœba Dysenteriae (Histolytica). P. A. Buxton.—p. 142.
*Analysis of One Hundred Consecutive Cases of Cardiac Disease. W. B. Jones.—p. 145.
*Direct Cultivation of Tubercle Bacilli from Tissues. G. H. Wilson.—p. 146.
Nasal Drill: An Investigation of Its Value in Treatment of Adenoids. G. H. Hickling.—p. 147.
Case of Ectopia Vesicae Treated by Implantation of Ureters in Rectum. C. C. Holman.—p. 149.

House Fly as Carrier of Endameba Dysenteriae.—It appears from Buxton's research that in a well sanitated area in lower Mesopotamia more than 60 per cent. of all the flies carry human feces; more than 4 per cent. of them carry actual human entozoa and probably at least 0.5 per cent. the cyst of *Endamœba dysenteriae*. He believes it justifiable to regard the fly in that country as not only a potential, but an actual and major factor in the carriage of the bowel disorders which are there so numerous. In fact, the egg of any human intestinal worm, or the cyst of any protozoan may be found in the fly if only one looks long enough.

Analysis of One Hundred Consecutive Cases of Cardiac Disease.—Of the 100 patients cared for by Jones, seventy-three complained of pain over the heart or neighboring part of the chest; nine complained of pain in the region of the lower ribs on the left side; in many of the cases the pain was only a dull ache; in all the pain was intermittent. Of these seventy-three patients, thirty-three experienced an increase in the area of the pain; thirty referred the pain to the left arm, two to both arms, and one to the right arm only. Fifty-one patients attributed the pain to exertion. Thirty-six persons stated that mental excitement caused the pain. Thirty-four persons attributed attacks of pain to digestive disturbances. Twenty-one patients complained of pain in bed. Eighty-nine patients complained of shortness of breath after slight exertion. Exhaustion after exertion occurred in eighty-five cases. Palpitation was noticed by thirty-six persons. Faintness was noted in six cases. Giddiness occurred in twenty-nine cases. The rate of the pulse was 76 or under in seventy-one cases; it was above that rate in twenty-nine cases. In two of the latter it was markedly irregular owing to auricular fibrillation. Thirty-six persons had high blood pressure; of these, twenty-five had symptoms of anginal pain. In sixty-one cases the heart was dilated, and in twenty-two of these a murmur was present. Albumin was present in the urine in three cases and sugar in one case.

Direct Cultivation of Tubercle Bacilli from Tissues.—The method of isolating tubercle bacilli from tuberculous tissues devised by Wilson depends on the use of (*a*) special medium for culture, and (*b*) the trituration of the tissue with dry quartz sand before the application of antiformin to destroy contaminating organisms. The tissue is cut up into small pieces and is thoroughly rubbed up in a mortar with a small amount of dry sterile quartz sand. The fibrous tissue is disintegrated as far as possible, and the material forms a slightly moist, crumbling mass. The contents of the mortar are then washed into a wide test tube with from 15 to 20 c.c. of sterile saline solution. The sand is allowed to sediment for a few minutes; as it falls, it carries down with it any coarser particles of tissue which remain. The supernatant fine suspension is then pipetted off, and thoroughly mixed with an equal volume of 15 per cent. antiformin. After five minutes, during which it should be stirred continuously, the mixture is centrifugalized at high speed for a few minutes, and the supernatant fluid is discarded. The sediment is shaken up with sterile saline solution and centrifugalized three times so that no trace of antiformin remains. The sediment resulting from the final centrifugalizing is used for making cultures, or, after emulsifying with a convenient amount of sterile saline solution, it is injected into a suitable animal. The medium used is a modification of Dorset's medium in which the contents of eggs are mixed with a three weeks' tryptic digest of horse heart instead of with water.

Journal of Industrial Hygiene, London

February, 1920, **1**, No. 10

Industrial Diseases Under Mediaeval Trade Guilds. T. M. Legge.—p. 475.
Mortality of Bituminous Coal Miners from Influenza Pneumonia, October to December, 1918. L. I. Dublin, New York.—p. 483.
Influenza in Eastern Group of Telephone Companies, Bell System, 1918. J. S. Billings and S. W. Wynne, New York.—p. 484.
*Unreported Cause of Occupational Dermatosis. R. P. White.—p. 498.
Pneumokoniosis in Man and Horse. R. P. White.—p. 500.
Control of Infectious Diseases in Industrial Communities. H. Zinsser, New York.—p. 501.

Unreported Cause of Occupational Dermatosis.—Attention is directed by White to a skin complaint which attacks certain employees engaged in the fellmongers yard. From four to twelve small ulcers, the size of a split pea, will be seen on the sides of the knuckles and on the interdigital skin of the fingers. The pullers scrape off the hair or wool by rubbing down the woolly skin with the balls of the naked thumbs and the ulnar edges of the palms of both hands. The characteristic rash and holes appear on these parts in the pullers. If neglected, the ulcers penetrate deeply, the sores easily becoming infected, causing inability to work. An effective trade-shop remedy is a drop of Stockholm tar applied to each hole. This appears to act as a protective, enabling the men to "carry on." Frequent washings of the hands in a weak solution of vinegar and water, followed by the thorough rubbing in of an ointment are helpful preventives. The ointment White prefers is as follows:

	Gm. or Cc.	
℞ Zinci oxidi	30	ʒj
Acidi oleici	270	ʒix
Emplastri plumbi	300	ʒx
Parenol (petrolatum 65; wool fat, 15; warm water to make 100 parts)	1140	ʒxxxviij
Hydrargyri ammoniati	180	ʒvj

Misce. Fiat unguentum.

Lancet, London

Jan. 31, 1920, **1**, No. 5031

Position of Medical Profession in Relation to National Physical Education. K. D. Bell.—p. 231.
*Indications for Cesarean Section. H. B. Whitehouse.—p. 235.
Cerebrospinal Fever in Infants and Young Children. Treatment and After Effects. H. M. M. Mackay.—p. 238.
*Edema as Symptom in So-Called Food Deficiency Diseases. A. D. Bigland.—p. 243.
*Treatment of Chronic Gonorrheal Rheumatism by Vaccines Given Intravenously. A. R. Fraser and A. G. B. Duncan.—p. 248.
*A New Pylorus; Posterior Gastrojejunostomy with Jejunojejunostomy as a Routine in All Cases of Pyloric Obtsruction; Duodenal or Pyloric or Chronic Gastric Ulcer. G. G. Gillon.—p. 251.
Case of Mediastinal Tumor Associated with Acute Leukemia. C. R. Harrison and D. McKelvey.—p. 252.

Indications for Cesarean Section.—During the past twelve months Whitehouse performed cesarean section eleven times. The indications were as follows: pelvic contraction, flat pelvis, two cases; pelvic contraction, round pelvis, five cases; placenta praevia (central), one case; eclampsia, three cases. The maternal mortality was nil, and only one baby was lost. This baby died on the fifth day, and its death was caused by neglect on the part of the nurse. Four cesarean sections were performed in the patients' own houses, as emergencies, without any preparation, such as is the usual routine before a prearranged abdominal section. There was no mortality and no morbidity, which, Whitehouse says, goes to prove that the operation may be performed with safety, provided that adequate surgical principles are observed at the time. There were two cases of maternal morbidity, both in nursing homes. One was a case of eclampsia in which the patient's doctor had ruptured the membranes before admission. The other was a case of flat pelvis, where intra-uterine sepsis occurred on the eighth day, in spite of the fact that no vaginal examination had been made prior to operation and the membranes were intact. In this instance the infection was traced to a nurse with a septic finger who was attending the patient. Both patients, however, recovered, and the morbidity cannot be attributed to the choice of the method of operation.

Edema as Symptom in So-Called Food Deficiency Diseases.—His observations led Bigland to the belief that epidemic dropsy is a condition due to affection of the suprarenal glands as a result of inanition arising from starvation, complete or partial. It may be that the suprarenals hypertrophy at the expense of the other endocrine organs, and by their increased function give rise to dropsy. Possibly also, this hyperactivity may in time give place to a suprarenal insufficiency, as exophthalmic goiter gives place to myxedema. This second condition may be pellagra. Whatever the true explanation may be, it is extremely probable that food deficiency, together with disordered function of certain endocrine organs, plays a large part in the causation of epidemic dropsy and pellagra.

Treatment of Gonorrheal Rheumatism by Vaccines Given Intravenously.—Fraser and Duncan think that giving vaccines intravenously secures a greater protection and that almost at once. The mechanism would seem to consist of a selective stimulation of the hemopoietic system by nonspecific bodies. Probably no single factor is responsible for all the changes that occur, but the intravenous injection upsets the balance of the serum constituents, and the series of changes thus caused establishes a condition favorable to recovery from infection. The vaccines they used had been stored for some months after their preparation, and they were, therefore, probably more or less detoxicated. Whether a detoxicated vaccine has any specific properties or not requires proof. They suspect that a vaccine minus its endotoxin consists simply of nonspecific proteose in a colloidal form. Clinically, they seemed to get the same results from injections of T. A. B. vaccine as from a gonococcus or mixed vaccine. The chief reason for using a gonococcus vaccine was that a supply was available, and its use afforded a great facility for graduating dosage. Freshly prepared typhoid vaccine often causes so severe a reaction that they would not risk giving it intravenously. Injections of endotoxins always produce toxic symptoms with but little or no increase of antibodies. Marked improvement followed in all of the fifteen cases treated. No benefit seemed to result from an injection that was not followed by pyrexia. At the time treatment was commenced, the patients were extremely debilitated with a rather fast and weak pulse, which was easily accelerated. The injections were all intravenous. The vaccines used were not freshly prepared. As a result of storing probably the toxins contained had broken down more or less. The injection of these, possibly nonspecific germ constituents, would seem to have caused the production of specific antibodies. The size of the doses used, compare favorably with the doses recommended by Thomson for his detoxicated vaccines. The largest dose of gonococci was 2,000 millions.

A New Pylorus.—Gillon does a posterior gastrojejunostomy with jejunojejunostomy as a routine in all cases of pyloric

obstruction whether duodenal or pyloric or chronic gastric ulcer. The results are said to be uniformly good, and the patients are not only well, but very well. They put on weight. They develop a great capacity for swallowing large quantities of liquids without discomfort.

Bulletin de l'Académie de Médecine, Paris

Jan. 6, 1920, **83**, No. 1

*Recrudescence of Lethargic Encephalitis. A. Netter.—p. 45.
*Desiccated Eggs. A. Sartory and L. Flament.—p. 46.

Lethargic Encephalitis.—Netter states that in less than six weeks he has encountered twelve cases of lethargic encephalitis and knows of twenty other cases. They come from different parts of the city. Fever and somnolency were noted in every case, but the motor center for the eye does not seem to be affected as constantly as when the disease was observed in 1918. Two of the patients recovered without sequelae of any kind and two died.

Bacteriology of Desiccated Eggs.—Sartory and Flament found a number of aerobic micro-organisms in the egg powders examined, but no anaerobes. They warn that unless the desiccation is complete, these powders invite molds, etc. In making omelets or similar dishes the cooking will sterilize the egg powder, but when used for such dishes as ice cream, there is reason to fear the contamination inevitable with the present mode of packing and handling.

Jan. 13, 1920, **83**, No. 2

*Motor Plastic Amputations. T. Tuffier.—p. 51.
*Plague and Leprosy in the Bible. Boinet.—p. 57.
*Dose of Ultraviolet Rays in Therapeutics. H. Bordier.—p. 59.
*Modern Treatment of War Wounds. H. Reynès.—p. 62.

Motor Plastic Amputations.—Tuffier expatiates on the sound principles involved in modeling the amputation stump to form loops, etc., which permit volitional control to some extent of the prosthetic appliance. In his recent trip to Italy he studied this cinematization and its results in the home of the method. The muscular force that these loops can exert is remarkable. In the leg, for example, he was unable to prevent the contraction of the loop even by applying all the force in his fingers. In the forearm and arm, the muscular power in the cinematized sets of muscles was also remarkable. Under the influence of the contraction of the loop in the stump, the fingers of the artificial hand can be flexed enough to grasp an article. But this grasp is very weak; it represents only 5 or 10 per cent. of this muscular force expended. The whole question and the future of these motor plastic operations depend on whether the prosthetic appliances can be perfected to transmit the muscular force in its entirety, or at least prevent such wasteful loss of power as at present. The prehensile force of the artificial fingers, even now, is enough for holding a pen or cigarette, wielding a fork, and lifting the hat, but in none of the cases he examined was there power enough in the fingers for manual work. However, the results already accomplished are a great gain for professional men, especially after bilateral amputation.

At the Rizzoli clinic at Bologna, Putti presented fifteen men who had been cinematized from six months to three years before, and at Milan Galeazzi gave demonstrations with ten others. Among them was one mechanic who was working a strong steel clamp with the cinematized biceps and triceps of his right arm, eighteen months after amputation of the arm. The precision of his movements was remarkable, and the clamp already showed signs of wear. Absolute fixation of the prosthetic appliance on the stump is indispensable to approximate natural conditions. The motor plastic operations are simple and easy. It may yet be possible to utilize separate muscles separately, and thus restore the play of the active and the antagonist muscles, instead of depending on the whole group at once. Surgeons must aim in their amputations henceforth to save as much as possible of the skin and soft parts, sacrificing the esthetic aspect of the stump to leave enough muscle and tendon material for ulterior and active utilization of the muscular force left in the stump. In conclusion Tuffier remarks that no mechanical genius has as yet concentrated his attention on prosthetics, and the appliances in use are still clumsy.

Plague and Leprosy in the Bible.—Boinet's quotations show that the connection between bubonic plague and rats was known to the ancient Hebrews, and he ascribes to leprosy Job's "sore boils from the sole of his foot to his crown." The makers of false antiques in Palestine offer tourists silver mice which they claim to have excavated.

Unit for Ultraviolet Ray Doses.—Bordier utilizes for his unit the action of the ultraviolet rays on silver nitrate. This chromo-actinometer unit, as he calls it, corresponds to the quantity of ultraviolet rays which are able to reduce 1 mg. of silver to the square centimeter in a tenth-normal solution of silver nitrate 1 cm. thick. He tests for this unit with blotting paper impregnated with a 20 per cent. solution of potassium ferrocyanid. The color scale with this corresponds to 0.5, 2, 6, 12 and 18 units of quantity, representing the slight erythem dose, the erythem followed by desquamation; the photo-epidermitis, and intense photo-epidermitis. The 18 unit dose represents actual photodermatitis. He found with this color scale that a current of 6.5 amperes corresponded to 1 unit; 6 amperes to 0.8 unit; 5 amperes to 0.5 unit, and 4 amperes to 0.3. An old mercury vapor lamp yields only 0.5 unit while a new lamp yields 3 units during the same period of exposure. With this unit, he remarks, there is no further need for empiricism and guesswork in dealing with ultraviolet rays.

Modern Treatment of War Wounds.—Reynès presents data to prove that as early as November, 1914, he introduced in his service the method of clearing out at once all the devitalized tissues in a war wound, and thus claims priority for this method, which was generally adopted later.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 19, 1919, **43**, No. 37

*Multiple Syphilitic Bone Lesions. A. Gilbert and F. Saint-Girons.—p. 1091.
*Familial Amyotrophy. Crouzon and Bouttier.—p. 1097.
*Alcoholic Meningitis. M. Villaret and others.—p. 1112.
*Glandular Functioning. H. Claude and S. Bernard.—p. 1116.
Share of Neo-Arsphenamin in Jaundice. H. Eschbach.—p. 1120.

Multiple Syphilitic Bone Lesions.—In the case reported by Gilbert and Saint Girons, in a woman of 52, there were seven foci of necrosis of bone, in the skull, radius, ulna, metacarpus and sternum.

Familial Amyotrophy.—Three sisters between 25 and 32 present different degrees of what Crouzon and Bouttier describe as a new variety of amyotrophy. The first symptoms appeared at 14, 22 and 12 years of age, and the older sister is unable to stand on account of the motor and atrophic disturbances. The speech is also spasmodic and panting, scarcely more than a whisper; the reflexes are abnormal, and there are choreiform movements.

Alcoholic Meningitis.—The subacute meningitis was explained by the alcohol found in the cerebrospinal fluid in the woman of 45. The symptoms were those of typical meningitis; syphilis and tuberculosis could be excluded, and the alcohol alone seemed to be responsible.

Tests of Endocrine Functioning.—Claude and Bernard have been giving organ extracts to healthy subjects and to those with various endocrine disturbances, seeking by these biologic tests to throw more light on the functioning of the different glands with an internal secretion. The responses differed widely from the normal after injection of pituitary extract in exophthalmic goiter, in hypothyroidism, and with suprarenal insufficiency. The different results obtained with organ extracts in different cases are readily explained by the varying preceding conditions in some of the endocrine glands. Among the practical results thus learned is that preliminary administration of thyroid extract or gland tissue enhances the action of the pituitary and suprarenal extracts.

Journal de Médecine de Bordeaux

Jan. 10, 1920, **91**, No. 1

*Surgery on Native Africans. L. Verdelet.—p. 7.
Pulmonary Sequelae of Mustard Gas Poisoning. H. Mallié.—p. 9.
*Hydrocyanic Acid. Chelle.—p. 14.

Surgical Experiences with Natives of French Colonies.—Verdelet was impressed with the extraordinary tendency to suppuration displayed by Africans on the slightest provocation. Suppurating hepatitis was common, and any lesion was liable to set up suppuration and cause the flaring up of old malaria or the onset of new, while the malaria in turn impeded the healing of the lesion. The malaria sometimes appeared disguised as acute appendicitis, orchitis, peritonitis or arthritis. He mentions further the ocular complications of malaria, and urges the advisability of preparing the subject for any operation by a preliminary course of quinin.

Toxicology of Hydrocyanic Acid.—Chelle reports experimental research which demonstrated that hydrocyanic acid and the alkaline cyanids become transformed under the influence of putrefaction processes into sulphocyanic acid. This is reversible under the action of a suitable oxidizer. After the death of a dog that had died ten minutes after taking 20 c.c. of a 1 per cent. solution of potassium cyanid, the organs were examined for hydrocyanic acid the second hour, and the eighth and thirteenth day. It had all disappeared, having become transformed to sulphocyanic acid, but it was easily transformed back again. This may prove useful in suspected cases of hydrocyanic poisoning.

Journal d'Urologie, Paris

December, 1919, **8**, No. 5

*Anatomic Results of Prostatectomy. L. Phélip.—p. 353.
*Prolonged Hematuria with Calculi. L. Escudié.—p. 381.
*Hematomas of the Spermatic Cord. J. Martin.—p. 387.

Anatomic Results of Prostatectomy.—Phélip has collected sixty cases in which necropsy (twenty-five cases), a second operation, or cystoscopy plus radiography disclosed the conditions left by the prostatectomy. They explain the recurrences in some cases; a second operation is generally successful, and completes, he says, "the fine anatomic findings after operations for hypertrophied prostate, whatever the route." In only two cases was a fistula left where the rectum had been injured during a perineal operation shortly before. In all the others with a fistula it had solidly healed.

Prolonged Hematuria.—Escudié reports four cases in which hematuria appeared suddenly without known cause, and without pain; it kept up during repose the same as when up and about; was refractory to all medical measures, and persisted for weeks and even months without much impairment of the general health, and it sometimes subsided and reappeared capriciously. The only clue to its nature was some incident in the past suggesting lithiasis or the roentgen discovery of a calculus. The influence of congestion was evident in some of his cases, as also in Hartmann's case in which hematuria kept up while the boy of 14 was in a plaster cast. Necropsy three years later disclosed a large stone in the right kidney.

Hematoma of Spermatic Cord.—Martin had two cases of this rare pathologic condition in two negro soldiers within two days, but no cases of the kind before or since. No cause for the hemorrhage could be discovered.

Lyon Médical

December, 1919, **128**, No. 12

Harmlessness and Value of Large Doses of Diphtheria Antitoxin. Pêhu and P. Durand.—p. 592.

January, 1920, **129**, No. 1

Operative Indications in Acute Appendicitis. E. Villard.—p. 6.
*Hysteric Paralysis. J. Froment.—p. 21.

Hysteric Paralysis.—Froment reiterates the importance of treating promptly and curing, usually in a few hours, hysteric paralysis, as otherwise it may drag along and become indelibly fixed. The opportunities for such "miraculous cures" as are possible with hysteria are too few and far between for any of them to be neglected. There is no use wasting time in seeking for stigmata of hysteria; the search is liable to impress unfavorable ideas. They are far from constant in hysteria, and the search for them may do harm by its effect as suggestion. It must be borne in mind that although hysteria may simulate all kinds of nervous disturbances, it generally simulates them in an incomplete form, and the absence of certain phenomena which we have reason to expect in a given clinical picture will reveal its hysteric nature, and show that it is pure fiction, although unconscious fiction, and often sincere. The subject is merely the victim of a simple illusion. The paralysis varies in its intensity from moment to moment, and according to the act required, and it may disappear completely at certain moments. In some movement, for example, or some attitude, we may detect the intervention of some group of muscles which seemed before to be totally impotent. Such paradoxical findings, along with the anatomic and physiologic integrity of the limb affected, speak in favor of hysteria. It is important, however, to detect any associated organic disturbance which would hamper or annul the measures directed to the hysteria. The treatment requires on the part of the physician an inflexible will, patience, tenacity, kindliness, iron energy, absolute confidence in the outcome, skill and self-possession. It is useless to reason with the patient. By varying the points of attack we seek to detect some movement in the paralyzed limb and convince the patient of his ability for movement, and start on from this for further progress. The hysteric paraplegic, for example, should be stood on his feet, and by aiding and making him walk, demonstrate to him that he can walk. Skill and tact are necessary to keep him from falling and from fruitless attempts, which confirm him in his conviction of his absolute paralysis. Sometimes it may take three or four hours to accomplish the result, but the session should not be concluded until some striking result has been attained, so that there can be no going back.

Médecine, Paris

January, 1920, **1**, No. 4. Ophthalmology Number

*French Ophthalmology. A. Cantonnet.—p. 195.
Advancement for Strabismus. Duverger and Mettey.—p. 200.
*Purulent Ophthalmia in Adults. Aubaret.—p. 202.
Dacryocystectomy. R. de Saint Martin.—p. 205.
*Cauterization for Dacryocystitis. L. Vacher and M. Denis.—p. 207.
*Foreign Bodies in the Eye. Vinsonneau.—p. 208.
*Harvesters' Keratitis. Chenet.—p. 210.
*Dilation of Orbit. P. Jeandelize.—p. 213.
Trephining in Glaucoma. A. Cantonnet.—p. 214.
*Iodin Treatment of Corneal Ulcer. A. Cantonnet.—p. 215.

French Ophthalmology, 1914 to 1920.—This entire number of *Médecine* is devoted to ophthalmology. Cantonnet lists among the lessons from the war the importance of fatigue and emotional stress in bringing on hemeralopia, and the frequent involvement of the eyes in dysentery, etc.: conjunctivitis and iritis in dysentery, keratitis and iritis in malaria, and recurring iritis in spirochetal jaundice. Similar complications ascribed to antityphoid vaccinations have been numerous, but analysis of them always disclosed a preexisting taint or predisposing factors or defective technic. The conclusion is obvious that the condition of the uveal tract should be ascertained before vaccinating against typhoid, especially subjects over 35 years old. He discusses further the disturbances in vision with pituitary enlargement, and the benefit from radiotherapy. Pituitary treatment may yield good results. If operative measures are necessary, access through the nose is less dangerous, and sometimes merely trephining the posterior wall of the sphenoidal sinus relieves the compression enough without exposing the pituitary. The cure of squint by exercising the eyes, without an operation, has been reported by several. Bailliart has invented an oscillometer which, pressed on the eyeball, renders visible the pulse in the retina. Terson has added another sign to those in vogue for determination of actual death: One or two drops of a mixture of copper glycerolate and ethylmorphin glycerolate are instilled in the conjunctival culdesac. If life is still present, the conjunctiva turns red. New, also, Cantonnet adds, are the aviation tests for the velocity of the visual acuity, for nocturnal vision, and for vision facing sun glare.

Treatment of Gonococcus Ophthalmia in Adults.—Aubaret insists on the importance of rinsing out the eye thoroughly whenever pus reappears. Every two hours, day and night, the conjunctival culdesacs should be cleaned out with a

cotton pad, or with a douche can and glass cannula, using a tepid 1:2,000 solution of potassium permanganate, or 1:3,000 of mercuric cyanid. He describes further the specialist treatment, and warns the physician to use protecting goggles.

Suppurating Dacryocystitis.—Vacher and Denis describe how to clear out the purulent secretion in the lacrimal sac and to disinfect it with ½ c.c. of chromic acid in a 1:50 solution, injected by the inferior canaliculus while an assistant at the same time instills hydrogen dioxid into the eye to neutralize any excess of the acid. After allowing two or three minutes for the acid to act on the lacrimal passages, he rinses them out with hydrogen dioxid. Preliminary cocainization of the eye and lacrimal passages is necessary, and mechanical clearing out of the inferior canaliculus. The following days the eyelids and eyes are laved in hot water, squeezing out the contents of the lacrimal sac by pressure on the internal angle of the eye. This cauterization with chromic acid has often rendered dacryocystectomy unnecessary in their experience, while it has always proved harmless and effectual.

Foreign Bodies in the Eyes.—Vinsonneau says that any practitioner can remove a foreign body from the eye if it is not embedded too deep and is recent. When it is located deep or has been in the eye several days, he should not attempt its removal, but send the patient at once to the specialist.

Harvest Keratitis.—Chenet warns that the slightest excoriation of the cornea when there is an infectious process in the lacrimal passages is liable to induce a serious corneal ulcer. Eleven such cases were recently under observation during harvest time, all requiring surgical measures, and all impairing vision to a certain extent. All the men had chronic lesions in the lacrimal passages.

Dilation of the Orbit.—Jeandelize stretches the too narrow orbit by progressive dilation with vulcanite casts of increasing sizes, made from a paraffin cast.

Iodin Applied to the Cornea.—Cantonnet reiterates that the cornea tolerates perfectly a 1:20 or 1:30 tincture of iodin, after preliminary application of 3 or 4 per cent. cocain. The iodin is taken up on a probe or glass rod and is held in the air for a minute or two to give the alcohol time to evaporate. Then the corneal ulcer is touched with it. The iodin cannot diffuse, as it is almost solid, and the conjunctiva thus escapes. The tincture should be less than 15 days old.

Presse Médicale, Paris

Jan. 7, 1920, **28**, No. 2

*Tuberculosis of the Spine. J. Calvé.—p. 13.
*Electro-Optic Rectoscope. D. Pamboukis.—p. 15.

Tuberculosis of the Spine.—Calvé insists that operative measures are useless and harmful in the early stages of Pott's disease in children. On the other hand, they are directly indicated in adults in the same conditions, as adults do not possess the faculty of spontaneous complete recovery which is peculiar to childhood. Orthopedic treatment with immobilization for three or four years results in complete consolidation in children, but the adult spine requires support as it never regains its full strength. The child with Pott's disease should be given general treatment for tuberculosis as well as the local orthopedic treatment. The organization of enough sanatoriums to allow this is the solution of the problem. For adults, the slight tendency to destructive processes and the lack of compensating processes are further reasons for reinforcing the spine by a grafting operation. He gives an illustrated description of his modification of the Hibbs technic. He makes a bed for the implant by cutting out the spinous process, leaving a right-angled cavity. Then he slits the lamina to each side, to the base of the transverse process, and turns back the piece thus pried up. This leaves a long, large freshened bed in the diseased vertebrae and in the sound vertebrae above and below. This gives a solid hold for the implant. The spinous processes resected are cut up into small pieces and are scattered along the whole length of the graft. This does away with the objections to the ordinary Hibbs method, which seems to be better adapted than the Albee method to the dorsal region. Lower than this, the Albee technic has given fine results in his hands. The article is illustrated.

Rectoscope.—The four branches of Pamboukis' rectoscope spread apart after the instrument has been introduced closed. One branch is graduated, and the electric light is shielded from the eyes, while a telescope system magnifies the findings.

Jan. 17, 1920, **28**, No. 5

*Dextrocardia and Dextroversion. H. Vaquez and Donzelot.—p. 41.
*Albumin Content of Cerebrospinal Fluid. Ravaut and Boyer.—p. 42.
Aseptic Pleural Effusion after Influenza. G. S. Coskinas.—p. 43.

Dextrocardia and Dextroversion.—Vaquez and Donzelot report two cases in which the long axis of the heart pointed to the right side, and yet the electrocardiograms were normal. Inversion of the cavities of the heart is the result of abnormal embryonal development, but when there is not inversion of the cavities, then the mirror aspect of the heart is always merely a mechanical displacement, with or without secondary malformation of the orifices. This seems to be the condition in these cases, both being apparently merely instances of congenital dextroversion of the heart.

Albuminimeter.—Ravaut and Boyer estimate the percentage of albumin in the cerebrospinal fluid by comparing the opacity of the fluid with that of a mixture of a solution of silver nitrate and of sodium chlorid. Two test tubes are graduated specifically for the calculation, and the whole procedure takes only a few minutes. The findings are as exact, they declare, as with any of the current methods, and no more than 1 c.c. of the spinal fluid is required for the test.

Revue Franç. de Gynécologie et d'Obstét., Paris

October, 1919, **14**, No. 10

*The Brussels Congress. L. M. Pierra.—p. 377.

The Brussels Congress.—This entire number of the *Revue* is devoted to the preceedings at the First Congress of the Association of French-Speaking Gynecologists and Obstetricians, held at Brussels last September. Most of the communications have been summarized in THE JOURNAL from various journals or in the special correspondence.

Revue Médicale de la Suisse Romande, Geneva

December, 1919, **39**, No. 12

*Intradermal Urine Test for Tuberculosis. F. Miche.—p. 567.
*Case of Codein Poisoning. L. Boissonnas.—p. 581.
Protracted Peritonitis from Typhoid Perforation. P. Gautier and P. Brutsch.—p. 587.
Vincent's Angina Simulating Hard Chancre. G. Cornaz.—p. 591.

Intradermal Urine Test for Tuberculosis.—Miche has simplified the technic for using urine from a tuberculosis suspect in place of or to control the tuberculin test, and reports that the findings paralleled those with the latter test in seventeen cases in which both were positive, and in four cases in which both were negative, but in four other cases they conflicted. With the urine extract the reaction is more pronounced in the very active cases, and it is weak in the cases with a more favorable prognosis, thus throwing light on the outcome. He explains this by the fact that the urine is a tuberculin-antituberculin, more potent in the more active cases. He evaporates fresh urine and uses the desiccated urine with 2 c.c. of distilled water, forming a 10 per cent. solution, and applies it for the test by the skin or the intradermal tuberculin technic.

Case of Codein Intoxication.—The boy of 3 was given 0.04 gm. of codein by mistake for calomel. There were no symptoms for forty-five minutes, then intense headache, stiffness and unconsciousness, imperceptible pulse, contracted pupils, and stiffness of the neck, the head thrown back, testified to the severity of the toxic action. The muscles in the legs were relaxed. The heart was beating at 120 and râles were heard at the hilum. Half an hour after a tepid enema and injection of camphorated oil, the child became conscious. The injections of camphorated oil were continued every two hours, and wet cups were applied to the dorsolumbar region, and the child was made to drink freely of black coffee,

diuretic teas and mineral waters. There were several convulsions but the symptoms had all subsided in three hours except for anuria and drowsiness. The anuria persisted for two days; the distended bladder was punctured the first evening, and 400 c.c. of urine withdrawn, as repeated attempts to introduce the catheter had failed. The nature of the substance given in place of the supposed calomel was not known until after several hours, the sugar with the powder interfering with the chemical tests. The literature on codein poisoning is reviewed. The loss of consciousness is constant in such cases; if this stage does not end in the fatal collapse, agitation, vomiting and gastralgia, convulsive movements and exaggeration of the reflexes are the usual symptoms. Dilation of the pupils was noted in some cases and contraction in others. In dogs, the narcotic stage is accompanied by miosis which changes to mydriasis in the stage of agitation. Retention of urine has been noted with 0.1 to 0.2 gm. of the drug.

Pediatria, Naples

January, 1920, **28**, No. 1

Malta Fever. G. di Cristina and S. Maggiore.—p. 1. To be cont'd.
*Symptoms from Cavity in Child's Lung. C. L. Rusca.—p. 23.
*Spina Bifida. R. Vaglio.—p. 33.

Symptoms from Cavities in the Lungs in Children.—Rusca expatiates on the misleading findings with a cavity in a child's lung, as the walls and tissues are so elastic that the vibrations are transmitted to remarkable distances. There is actually no absolutely pathognomonic sign of a cavity; the presumptive signs have to be considered in connection with the roentgen findings.

Spina Bifida.—In the last six years twenty-three cases of spina bifida have been under treatment at the children's clinic in Naples. In one case it was double, both cervical and lumbar; in another, the tumor returned as hydrocephalus developed after the operation for the spina bifida. In 52 per cent. there were other malformations; inherited syphilis was manifest in 39 per cent. This suggests the advisability of specific treatment preliminary to operation when there is the least suspicion of the inherited taint. Vaglio thinks it is wiser to defer operating for spina bifida until the infant is a little older, unless one's hand is forced.

Revista Española de Obstet. y Ginecología, Madrid

October, 1919, **4**, No. 46

*Extra-Uterine Pregnancy at Term. P. Nubiola.—p. 433.
Radium Treatment of Uterine Cancer. Vital Aza.—p. 440. Cont'n.
*Delivery of Thoracopagus Monster. Roig-Raventos.—p. 449.

Delivery of Viable Child from Extra-Uterine Pregnancy.—Nubiola ascertained that the pregnancy was continuing apparently normally although the fetus had slipped into the abdominal cavity. The woman was kept under surveillance, and was delivered by a laparotomy at term. The left tube was adherent to the membranes; the ovum had probably been embedded primarily in this tube. It was resected, and the placenta was separated by hand—a most tedious task as it was attached besides to the posterior surface of the uterus, the Douglas pouch, to portions of the rectum and cecum and to several loops of the bowel. Step by step, with numerous ligatures, the placenta was pried loose, leaving an extensive raw surface with merely slight oozing of blood. The child seems to be normal, and at 4 months weighed 5 kg. Marsupialization and abandoning the membranes and placenta may be required in exceptional cases, but only when conditions are too grave to remove them at once. Nubiola reviews what others have written on the subject, including Harris' thirty cases (1888) and R. Costa's monograph (1915), and nine in recent Spanish literature. In his case he irrigated the abdominal cavity by the Carrel-Dakin method, commencing the seventh day when the temperature had begun to rise. At the third week a scrap of gangrenous membrane tissue was expelled, and, after this, recovery was soon complete.

Thoracopagus.—Roig-Raventos describes the maneuvers necessary for extraction of the united twins. The membranes had ruptured four days before. The cause of the obstruction to delivery was not recognized until the united trunks came into view. The total weight was 7,500 gm. and the placenta weighed 1,800 gm. When he saw the case there was no circulation in the cord, and evisceration aided delivery.

Mitteilungen aus der Med. Fak. der Univ. zu Tokyo

Jan. 27, 1919, **21**, No. 1

*Morphology of Spleen Tumors. Y. Nishikawa.—p. 1.

Morphology of Spleen Tumors.—Nishikawa's monograph fills the 216 pages of the issue, and is accompanied by twenty-nine photomicrographs and a bibliography of the titles of 154 articles. The morphology is compared of the various chronic tumors of the spleen, enlargement with malaria, cirrhosis of the liver, leukemia and simple congestion of central or peripheral origin, syphilis, schistosomiasis and Banti's disease—a total of 116 cases. The regular and even fibrous degeneration of the spleen in Banti's disease is so constant and so extreme that it may be regarded as almost pathognomonic. The enlarged spleen is the primary site in this disease, and consequently splenectomy is the rational treatment of Banti's disease. The characteristic microscopic findings in this and other diseases are compared in fourteen folding tables, the cases listed under eighteen headings, including the blood and marrow findings, duration, and various clinical symptoms.

Berliner klinische Wochenschrift, Berlin

Oct. 27, 1919, **56**, No. 43

*Comparison of Wassermann and Sachs-Georgi Tests. A. Raabe.—p. 1012.
*Stages of Pulmonary Tuberculosis. K. Engelmeier.—p. 1014.
*Tuberculosis of the Larynx. J. W. Samson.—p. 1018.
*Erythema Dose in Hard-Ray Roentgenotherapy. F. M. Meyer.—p. 1020.
Increasing Spread of Quackery. Neumann.—p. 1021.

Comparative Investigations with the Wassermann and Sachs-Georgi Tests.—Raabe reports the results of a series of comparative Wassermann and Sachs-Georgi tests, and gives a detailed description of the modified technic for the latter. It is applied with physiologic sodium chlorid solution and natural cholesterinized organ extracts. Of the 1,750 parallel tests, 569 were positive by both the Wassermann and the Sachs-Georgi reaction, while 1,005 cases were negative by both tests. Of the 569 positive cases, 519 had been clinically diagnosed as unquestionably syphilis. In view of the close agreement between the results secured by the two methods, the writer concludes that, from the standpoint of diagnosis, therapy and prognosis, the Sachs-Georgi precipitin test deserves ample recognition, but she does not think that it can be regarded, even with its simplified technic, as a substitute for the Wassermann reaction. Its value as a control of the Wassermann reaction is, however, already established.

The Clinical Value of Recent Classifications of the Stages of Pulmonary Tuberculosis.—The clinical need of a practical classification of the various stages of pulmonary tuberculosis has long been felt and many attempts at classification have been made. Engelmeier describes in detail several methods of classification and the principles on which they are based. He favors Ranke's classification, who, he thinks, is without doubt on the right track, in that he considers not only the organ in question—the lungs—but also the behavior of the whole organism. Ranke's views need, however, further elaboration and confirmation in order to make them more valuable to the practicing physician. More important than the classification of the disease is the proper evaluation of the patient. We must remember that we are not treating a disease, but a sick person.

Tuberculosis of the Larynx.—Samson confirms previous reports that the increase in tuberculosis during the war period in Germany has been very marked. This has attracted the attention of all concerned to the various complications under which the disease appears, and Samson finds that our views with respect to tuberculosis of the larynx, especially, need some revision, owing to the exceptional danger of infection from it. It is estimated that the percentage of

patients with laryngeal tuberculosis whose sputa contain tubercle bacilli is twice as great as the number of patients with pulmonary tuberculosis of whom this is true. According to Bingler the proportion is even greater (75.8 per cent. as compared with 30 per cent.). These figures show the great importance of measures for the protection of the patients' families and the general public. For the purpose of early diagnosis of tuberculosis of the larynx, which thus becomes imperative, it is desirable that the lung specialist should also be a throat specialist. Samson emphasizes the need of isolation of such patients in the family, as the danger of spreading the infection is a thousand times greater than in the case of pulmonary tuberculosis. With the latter, care in collecting and disposing of the sputum will accomplish much in the way of prophylaxis, but with tuberculosis of the larynx such care is in vain, owing to the danger of infection from sudden coughing spells and the increased respiratory effort in speaking, as has already been pointed out by Friedrich. The need of isolation applies to hospitals and sanatoriums as well as to families.

Erythema or Normal Dose in Hard-Ray Roentgenotherapy.—Meyer is convinced that widespread uncertainty exists as to what constitutes an erythema, or normal, dose in hard-ray roentgenotherapy. He thinks this uncertainty is due to the fact that formerly roentgenotherapy with medium soft rays prevailed, and that here there was an accidental correspondence between the desired biologic effect and the effect on a certain chemical substance—barium platinocyanid—in a dosage that produced a certain definite coloring, known as Tint B, when applied to a patient caused an erythema of the skin (allowing, of course, for idiosyncrasies and the fact that certain parts of the body—the face, for instance—are more sensitive than others). Meyer fears that these same conditions are still being applied by some to the hard-tube irradiation, with the result that, from a practical standpoint, the technic is defective and too small doses are given. The harm lies not only in the fact that patients are thus deprived of the maximal benefit, but also in the added fact that in the treatment of malignant growths an underdose, instead of paralyzing or destroying malignant cells, may be just suited to incite them to increased proliferation. Meyer states further that if a disease does not react to one form of irradiation, one should not assume on that account that it will not react at all. A change in our therapeutic program and our technic will often bring about the desired results.

Deutsche Zeitschrift für Chirurgie, Leipzig

March, 1919, **149**, No. 1-2

*Gastric and Duodenal Ulcer. A. Troell.—p. 1.
Gas Cysts in Brain from War Wounds. Goldammer.—p. 86.
Emergency Treatment of War Fractures. O. Braun.—p. 100.
Ileus from Shellac in Small Intestine. W. Bellmann.—p. 127.
*Dislocation of First Tarsometatarsal Joint. Girgensohn.—p. 135.

Surgery of Gastric and Duodenal Ulcers.—Troell reviews the experiences at the Serafimer Hospital at Stockholm since 1907 with operative measures for gastric and duodenal ulcers, a total of 234 cases, and compares them with results reported by others. His bibliography includes 191 works. Multiple ulcers were found in 5 per cent. There was appendicitis in only 9 cases, and gallstones only in 2. The time of onset of the pains did not correspond infallibly to the location of the ulcer, although there was some evidence which suggested that the degree of the acidity or disturbance in motor functioning determined the character of the pains. Pronounced hyperacidity with an extrapyloric ulcer may induce pains like those of a juxtapyloric ulcer. On the other hand juxtapyloric duodenal ulcers may induce pains of the extrapyloric gastric ulcer type. He queries whether this is a general rule or not. In many of the cases there had been no pains or they had been slight. He queries further whether there is any special region in the stomach where ulceration never induces pain. Attenuation of the pains on change to reclining on the left side was noted with 3 extrapyloric gastric cancers; 3 patients were relieved by lying down; 1, with a duodenal ulcer, by standing up. In 26 cases, including 11 extrapyloric gastric ulcers, the pains were relieved by eating something; in 38 cases, by vomiting. A connection with constipation was evident in a few cases, the pains being relieved by defecation. There had been diarrhea in 27 cases. The symptoms that never proved misleading included tenderness over the duodenum, the protruding or receding pocket, the air bubble at the top of the duodenum, the retraction in the wall at one point, and rapid passage of the chyme through the duodenum, or antiperistalsis. But displacement of the pylorus to the right may occur with gastric ulcer, and the chyme may linger in the duodenum.

The mortality of the ulcer operations was 8.5 per cent. before 1916 and 6 per cent. since then, mostly from peritonitis and lung complications. Troell's conclusion from the gastric ulcer cases is that resection, with gastro-enterostomy, guarantees best complete recovery, and this without any more operative risk than gastro-enterostomy alone. This applies both to transverse and to segmental resection, plus the gastro-enterostomy. All this material is tabulated under various headings, as also the roentgen findings in 64 cases, reexamined later. The latter group teach the necessity for making the gastro-enterostomy well toward the right to avoid production of a blind pouch. Another point learned is the unreliability of measures to shut off the pylorus, and it is a question whether there is any use in attempting it. The experiences related show further the possibility of secondary hour-glass constriction of the stomach after terminal suturing together of the stumps. In 13 per cent. of the total ulcer cases, with long survival, the operation did not improve conditions. This group included 10 per cent. of the hour-glass stomach cases; 10 per cent. of the antral gastric ulcer cases; 10 per cent. of the pyloric duodenal ulcers, 11.5 per cent. of the extrapyloric gastric ulcers; 20 per cent. of the extrapyloric duodenal ulcers, and 41 per cent. of all the cases with dubious operative findings. Thus, no improvement followed the operation in 41 per cent. of all the cases with inconclusive operative findings, and this teaches, Troell declares, the advisability of refraining from any operation when the exploratory incision fails to show any crater, scar, or other evidence of ulcer.

Dislocation of the First Tarsometatarsal Joint.—Girgensohn advocates immediate reduction, giving the roentgen findings in a case. A fall from a horse is the most frequent cause of the luxation. The prognosis is good with proper treatment.

April, 1919, **149**, No. 3-4

*Gastric and Duodenal Ulcers. W. Reinhard.—p. 145.
Habitual Dislocation of Patella. F. Lückerath.—p. 236.
Irrigation Treatment of Inflammation in Abdominal Cavity. J. J. Sinitzin.—p. 265.
The Murmur in Aneurysms. A. Israel.—p. 281.

Gastric and Duodenal Ulcer.—Reinhard devotes ninety pages to a critical summary of the experiences at the Hamburg clinic with 68 cases of gastric ulcer; 36 of pyloric; 33 of duodenal and 13 of dubious duodenal ulcer with 9 cases of cicatricial stenosis of the pylorus. The symptoms and clinical picture in practically all pointed unmistakably to ulcer, but not to its location. The symptoms with gastric ulcer were often those supposed to be typical of duodenal ulcer and vice versa. Palpation gave instructive findings in 79.8 per cent. but not as to the location. The chemistry of the stomach was normal in nearly 50 per cent. Roentgen findings were conclusive as to the ulcer but were not always a reliable guide to its site.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Nov. 8, 1919, **2**, No. 19

*To Prevent Loss of Vitreous Fluid. J. van der Hoeve.—p. 1426.
*Testing Permeability of Lacrimal Canal. G. F. Rochat.—p. 1429.
*Metastatic Sarcoma in the Eye. G. ten Doesschate.—p. 1432.
*Refraction in Semidarkness. F. Wibaut.—p. 1437.
*Syphilis of the Stomach. G. O. E. Lignac.—p. 1441.
Emergency Tracheotomy on Account of Goiter. H. van der Tak.—p. 1448.

To Prevent Loss of Vitreous Fluid in Operations on the Eyes.—Van der Hoeve gives an illustrated description of the four threads method with which he lifts up the anterior wall of the eyeball. The vacuum made by lifting up the wall aspirates back any of the vitreous fluid that is on the point

of escaping. Each thread is passed through the outer layers of the cornea, close to the iris, to form four loops with which the two assistants lift up the wall when loss of the fluid is impending. The loops are useful also for other purposes, as he describes.

Test for Permeability of the Lacrimal Canal.—Rochat comments on the difficulty sometimes experienced in determining whether the lacrimal canal is normally permeable, as the pressure required to force fluid through the canal varies so widely. His own research seems to show that the pressure required in normal conditions is from 17 to 22 cm. water. When greater pressure than this is required, the lumen is certainly pathologically narrow.

Metastatic Sarcoma in the Eye.—Ten Doesschate reports a case, in a woman of 49, of primary melanosarcoma in the right eye with multiple metastases, including one in the left eye. In a second case, a woman of 50, a pigmented nevus below the right breast became transformed into a sarcoma, and was excised in 1914. In 1917 metastases developed in the brain and skin and in the uvea of one eye and in the retina of the other eye, but the papilla escaped. He does not know of any record of similar metastasis in the retina from a tumor elsewhere. A few cases are cited of metastases in the eye from sarcomatous degeneration of a nevus on the cheek, parotid region, etc., but none were on the retina. Primary sarcoma in both eyes has been reported by Fuchs and five or six other writers.

Refraction in Semidarkness.—Wibaut asserts that the refraction increased by 0.5 to 1.5 D in semidarkness in seven persons tested. Charpentier reported eighteen years ago that myopia becomes exaggerated in the dark; he found differences up to 3 D in some, and in himself up to 2 D. Wibaut explains the mechanism of this.

Syphilis of the Stomach.—Lignac resected the middle third of the stomach for supposed cancer in a man of 52, and the latter has been in good health during the nine months to date, but the resected portion showed merely chronic gastritis, gummas and syphilitic ulcers, no signs of malignant disease. Dubuc gave specific treatment in a case of supposed cancer of the stomach and the results were excellent, as also in several of Fenwick's cases of supposed gastric cancer. Lignac queries whether we ought not to rank gastric syphilis beside ulcer, gastric cancer, and gastric crises in studying puzzling cases of pathologic conditions in the stomach. The absence of tertiary manifestations elsewhere should not exclude syphilis. This lesson was taught by the case here reported in which there was nothing to suggest syphilis before the operation; even the Wassermann test was negative. Benefit from specific treatment should be evident in five days, but relapses are liable. The great danger is hemorrhage from an eroded vessel. Fränkel has reported a case of peritonitis from perforation of a gummatous ulcer. In Nathan's case, mercurial treatment of a tertiary syphilitic lesion on the arm cured at the same time pathologic conditions in the stomach which had been causing symptoms for ten years. The pains may be severe, especially at night, and the clinical picture in general may simulate gastric ulcer, cancer or tabetic crises.

Hospitalstidende, Copenhagen

Jan. 7, 1920, **63**, No. 1

*Bromid Infusion in Psychoses. C. Jørgensen.—p. 12.

Bromid-Saline Infusion in Treatment of Psychoses.—Jørgensen relates that bromid by the mouth has not been satisfactory in the treatment of psychoses in Jacobsen's service. Since they have been giving it by the subcutaneous route, the results have been immeasurably better. They give it in saline infusion, and assert that this treatment is more potent in controlling maniacal attacks than any other simple and harmless measure known to date. The mother solution is made with 150 gm. sodium bromid; 7 gm. calcium chlorid; 3 gm. potassium chlorid, and distilled water to 300 c.c. For the infusion they use 20 or 30 c.c. of this solution in a liter of water. It is thus a slightly hypotonic or isotonic saline solution with a content of 15 gm. sodium bromid. This infusion once or twice a day aids in combating the toxic factors responsible for the exacerbation, while the substitution of the bromid for the usual sodium chlorid in the saline solution has an exceptionally prompt sedative action. Nine cases are described to show the efficacy of this treatment, arresting convulsions and delirium. Some of the patients responded in cases refractory to the usual narcotics with a slight rise in temperature, and one, a previously healthy woman of 46 with acute mania for a week, developed a slight and briefly transient collapse condition after one of the bromid-saline infusions, but she also had the same after an ordinary saline infusion. As 103 gm. sodium bromid is the equivalent of 58.5 gm. sodium chlorid, the solution used is equivalent to an ordinary 8.5 per thousand solution of sodium chlorid. In the two latest cases they gave 80 gm. and 105 gm. of the bromid in the course of four days, and the acute mania subsided.

Jan. 14, 1920, **63**, No. 2

*Cholelithiasis and Achylia. F. Rydgaard.—p. 17. Begun No. 1, p. 2.

Cholelithiasis and Achylia.—Rydgaard found achylia in 47.4 per cent. of Rovsing's operative gallstone cases, and in 52 per cent. of a total of 471 cases compiled, including the Rovsing cases in 26 men and 132 women. The sex and age do not seem to influence the achylia, but 74 per cent. of the 135 patients with stones obstructing the cystic duct had achylia or hypochylia. In some cases the achylia developed as the cystic duct became obstructed, showing the special dependence of the former on the latter. It seems plausible to assume that the incontinence of the sphincter papillae, which is so often entailed by the stretching of the cystic duct by the gallstones, upsets the physiologic process of the neutralizing of the acid stomach content by the bile. The former is poured out unneutralized into the duodenum, and the irritation of the duodenal wall from its acidity sets up reflex action which entails the achylia. When the sphincter is normal, there is no achylia notwithstanding the presence of gallstones. Other arguments are presented which sustain Rovsing's conviction that the gallbladder is a physiologically important organ, and that it should not be removed without imperative indications for this. Cholecystotomy is all that is necessary in many cases to cure both the gallstone disturbances and the achylia. Even if there should be recurrence of stones, this is not enough of a reason for removing the gallbladder, any more than the kidney under similar conditions. The experiences related and the theoretical reasoning all emphasize the necessity for early operative measures in cholelithiasis, getting rid of the stones before the cystic duct has been stretched to a degree that entails incontinence. An early operation also wards off achylia and, in warding this off, prevents infection. As soon as the first symptoms warn of the presence of gallstones, operative measures should be applied at once, Rydgaard reiterates in conclusion.

Norsk Magazin for Lægevidenskaben, Christiania

January, 1920, **81**, No. 1

*Cesarean Section at Christiania. K. Brandt and C. Smith.—p. 1.
*Diet with Insufficiency of the Kidneys. K. Motzfeldt.—p. 13.
*Vital Staining of Nerve Cell and Its Consumption of Oxygen. G. H. Monrad-Krohn.—p. 36.
Pathologic Anatomy of Influenza and Its Complications. F. Harbitz.—p. 46.

Cesarean Section.—Brandt and Smith analyze the record at Christiania of sixty-two classical cesarean sections and forty vaginal in the last thirteen years in a total of 18,140 childbirths. In 87.5 per cent. the operative delivery was the last resort in eclampsia, and 80 per cent. of the women were saved by it; in 10 per cent. of the others, necropsy disclosed irreparable lesions of internal organs. Central placenta praevia was the indication for the classic section in two cases, with recovery in both. They regard vaginal section as irrational for placenta praevia; the difficulty is to recognize the central placenta in time.

Dietetic Treatment of Insufficiency of the Kidneys.—Motzfeldt insists that functional tests of the kidneys must be the guide for treatment, varying the diet to conform to the individual conditions at the time. He recalls that restriction

to milk in systematic treatment of Bright's disease was preached by Chrestien of Montpellier four years after Bright's publication. His motto was "Milk or death"; but we know now that abstention from salt and a low protein diet are the essential features of dietetic treatment, and that milk does not conform entirely to either essential. Carbohydrates and fats can be disregarded and be allowed, free from restrictions, but the water balance, the mineral metabolism, and the nitrogen intake must all be studied and regulated according to the tolerance. Retention of salt may be a secondary phenomenon, and extrarenal factors probably play a large part in it, so that it is scarcely correct to speak of the kidney's "permeability for sodium chlorid." From the therapeutic point of view this is of minor importance, but it is still a question whether the sodium or the chlorid element is the responsible factor. Thorling regards the sodium as more directly influencing the water balance, so that attempts to substitute sodium chlorid with sodium bromid or citrate or other sodium salt are not rational. Motzfeldt warns against the routine use of a salt-free diet, saying that it has not fulfilled the anticipations roused by Widal's cases, and even at the best, the conditions may be so grave that the strictest reduction may not have any effect. It should be given a trial, however, and be continued for several weeks. The outcome was most striking in one case of acute nephritis in a young man; on the salt-free diet he lost 27 kg. in weight in twenty-two days. He eliminated 250 gm. of chlorids in the urine, which corresponds to 27 liters of a 9 per thousand saline solution. Widal has reported a case with loss of 28 kg. in seventeen days. Widal regards 1.5 gm. as the ordinary sodium chlorid requirement, below which it is unwise to go for a long period; Romberg says that 5 gm. is the limit; Strauss, 2 gm. In uremia with convulsions, if the phenolsulphonephthalein test shows normal conditions, the protein intake need not be restricted. But otherwise a low protein diet is indispensable, down to 20 or 30 gm. temporarily; 50 gm. seems to be the lowest limit that can be borne for any length of time. Restriction of the protein reduces the uremia, attenuates the clinical symptoms, and renders the prognosis more favorable, as Motzfeldt shows by four cases. The effect can never be definitely determined beforehand, and it should always be given a trial, especially in the acute exacerbations of chronic nephritis. It may take several days for the effect on the uremia to become manifest. When the nitrogen content of the blood has been brought down to normal, the patient's tolerance for protein should be carefully determined. His charts give the protein intake curve, the degree of azotemia and the phenolsulphonephthalein findings curve. In conclusion he reiterates that the diet with kidney insufficiency should be determined and enforced with as much care as in diabetes.

Vital Staining and Oxygen Consumption of Nerve Cells.—Krohn describes Mott's recent research on the consumption of oxygen by nerve cells and the transformation of chromatomethylene blue into leukomethylene blue in the living nerve cell, and the reversive transformation when oxygen is supplied. In Mott's work on shell shock he explained how the smaller nerve cells are particularly susceptible to deprivation of oxygen, as they have so little reserve oxygen to draw on, in comparison to the larger cells.

Ugeskrift for Læger, Copenhagen

Jan. 8, 1920, **82**, No. 2

*Hysteria in Children. Monrad.—p. 31. Begun in No. 1, p. 1.
*Torsion of the Omentum. H. O. Wildenskov.—p. 40.
*Inherited Neurosyphilis. K. Baagøe.—p. 42.

Hysteria in Children.—Monrad gives a brief review of the recorded history of hysteria in children, the etiology and the pathogenesis and then describes the extremely varied manifestations of hysteria in children. He emphasizes that in children it is monosymptomatic, that is, there are merely single or a few manifestations while there are none of the permanent symptoms, the so-called stigmata. Over 200 cases of hysteria in children have been encountered in his practice in the last ten years. It simulated in the different cases almost the entire range of organic pathologic conditions in the nervous system, the urogenital and digestive apparatus, and the abdomen, besides various surgical processes. Numerous instances of each type are described and the treatment found most effectual. The prognosis of hysteria is far more favorable in children than in adults. Treatment has to be exclusively psychotherapy and this requires skill and tact, and usually removal of the child to some wholesome environment where he will not be the central figure. The transference to a hospital may make the child forget his hysteria completely. The psychotherapy may be masked with some local application to cause a little pain or shock, but the main thing is to impress the physician's authority on the child while convincing him that the doctor is his friend. Sometimes a child with astasia-abasia can be cured by standing him up on the floor and categorically commanding him to walk. A promised reward may aid in some cases. A sudden cold douche or electric shock on the region affected may succeed, but Monrad warns that when any of the above measures fails, it is useless to repeat it.

In a paroxysmal form of hysteria, systematic ignoring of the child often proved effectual; especially when the child was allowed to overhear the persons in the room speaking of what would have to be done to him if the attacks continued. Examination under a general anesthetic, besides roentgenoscopy and tuberculin tests, may be necessary to exclude organic bone disease. One little girl had a hysteric sacrocoxitis, others hysteric neuralgia in the knee, hip joint, heel or spine. There was usually a history of some trauma attracting attention to the region and the cure is often tedious then as the local measures applied had anchored the hysteria more firmly. In the case of one girl of 5 a specialist had diagnosed cervical spondylitis and insisted on orthopedic treatment. The symptoms became so alarming that the child was taken into the general hospital where the diagnosis was changed to hysteria from the negative tuberculin and roentgen findings, the history of pediculosis with impetigo and swelling of the glands in the neck, causing pain when the head was moved. The torticollis, etc., were only the hysteric prolongation of a previous reflex torticollis, and the cure was complete in a few weeks. In infants about a year old, hysteric anorexia may be connected with weaning or be a hysteric prolongation of some gastro-enteritis. Removal to another environment usually cures it at once. One girl of 11 had become so emaciated and weak from the hysteric anorexia that the pulse was only 40, respiration 16. Isolation in the hospital did not help until she was told that she would have to be fed through a "snake," the Danish word for "snake" and "tube" being the same. Then she began to eat normally until she coaxed an attendant to show her the "snake"; no more eating after that. Finally Monrad told the nurse in her presence that if she did not begin to eat soon she would get decubitus. The girl inquired about decubitus and was shown the large loathsome sores. This cured her anorexia, and she gained 1,900 gm. in weight in two weeks, but the anorexia returned a few months later. In three cases there were hysteric strictures in the esophagus. Hysteric vomiting is usually cured by removal from home, even when the vomiting has kept up for years. In five cases the hysteria simulated appendicitis, the children having heard older people describe the symptoms.

Torsion of the Omentum.—Wildenskov urges detorsion and resection of the omentum, saying that with this the mortality was only 4.5 per cent. among the 89 cases on record, exclusive of the 3 per cent. fatalities explained by other causes. In the personal case reported the diagnosis had been appendicitis. In 65 of 80 cases there was concomitant hernia, as also in his case. The long pedicle of the clump of omentum in his case had made six complete turns toward the left.

Inherited Neurosyphilis.—Baagøe queries as to the connection between the inherited syphilis and the imbecility plus the extreme backwardness; the aphasia; or the juvenile tabes, plus sudden blindness, in the three children described. Some of them testify anew to the fact that these severe forms of neurosyphilis from the inherited taint occur in the children of parents whose syphilis was so mild it escaped detection or was disregarded.